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March 1935

TECHNOLOGY REVIEW

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THE TABULAR VIEW

MANY ideas as well as actual changes in the theory of the structure of our society in recent years have gone unnoticed, because, not being fully understood by the majority, they have been passed over as unimportant. The development in the country of the subsistence-homestead idea is one innovation that has not received the attention that it deserves from the public. EDWIN S. BURDELL, '20, who writes on the production unit and subsistence-homestead projects in Dayton, was State Administrator for Emergency Education for Ohio before he came to Technology, last fall, to take the chair of Associate Professor of Sociology. He writes, therefore, from first-hand information. ¶ Professor Burdell feels that homesteading should not mean farming. It should be rural-urban living, at least until further decentralization of the factories makes it unnecessary to commute to crowded cities. A recent survey in Austria and Germany made by Clarence E. Pickett for the Government Subsistence Homestead Division confirmed this point of view. "Hitler," says Pickett, "hasn't interfered with Germany's farm-subsistence projects. Sixty-six thousand German families are living on small farms. One is in the suburbs of Berlin, and was financed jointly by the German government and Germany's largest electrical manufacturing company.

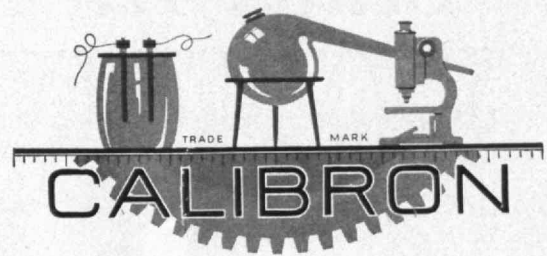
"Four hundred and sixteen families live in that community. They have three-room houses and plots of land 90 feet front by 225. They keep chickens and, sometimes, a goat for milk, and raise vegetables. Heads of families are employed by the electric concern.

"All of Germany's subsistence projects have been developed in 10 years, partly with government financing and partly on a 50-50 basis with industry, as in the Berlin community. Germans have found, however, that without some tie-up with industry the project is a failure.

"Families stick it out two or three years, then their clothes are worn out and they're sick of being without money. They hear of a job, and go and get it. The job comes to an end; they're out of work and back where they started.

"But one German state is organized on a 100 % subsistence-farm basis, and it's the only one not now suffering from depression. . . . Württemberg workmen travel as far as 25 miles to their factory employment. Citizens of one community hire a bus in common and travel together. One huge manufacturing concern employs 12,000 men all of whom live on their own small plots of ground."

AS Assistant Professor of Economics at the Institute, B. A. THRESHER, '20, has studied in detail the effects of technical innovations on political and economic life. ¶ D. C. SAYRE, '23, is on the staff of *Aviation*, and is a frequent contributor to The Review on aeronautical subjects. For further information on the air lines which will connect Pan American transpacific service readers are referred to the Technology Review of last December.



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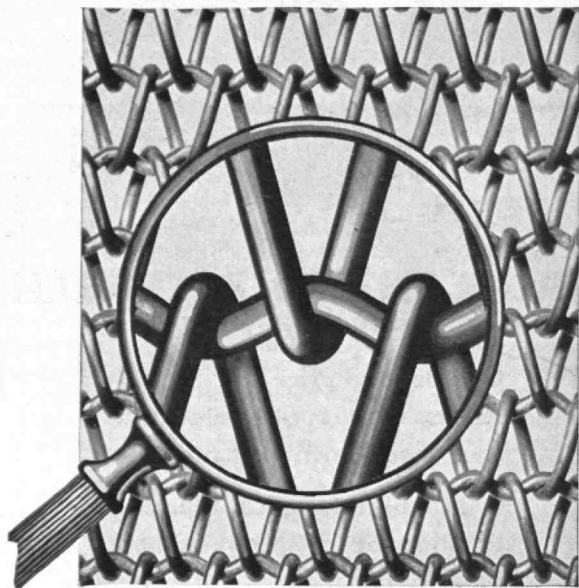


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BENDING MOMENTS

Left, Right; Left, Right

DURING the January blow that brought an official 16 inches of snow to Boston but a full three feet in every place *we* had to shovel, there occurred one of those Shakespearian touches of nature that do make the whole world kin. One of the distinguished deans who head Technology's three schools stuck his shoes in his brief case and bravely mushed his way to the Institute in hip boots, with the idea, of course, that, once in his office, he would exchange the hip boots for his shoes, thereby resuming his usual meticulous professional dress. The plan worked well, with one minor *contretemps*. After successfully slipping into his office without any students seeing the hip boots, he sat down, after warming his toes at the radiator, to put on his shoes.

They were both for the left foot.

Panhandlers vs. Professors

During a recent science assembly in a distant city three Technology professors were returning from one of the meetings on a night that was bitter cold. Two of these professors were wrapped in heavy shawls and overcoats, and yet they shivered. The third was coatless and hatless, and seemingly quite warm. Now this professor No. 3 was thus scantily clothed purely from volition. He resolutely refuses in winter to add the usual wrappings that most of us find so inadequate, and day after day we see him sally forth in the blizzards and gales with only a hey nonny nonny, and no overcoat.

As these three strolled their frigid way, a panhandler accosted them, asking for a cup of coffee. Quick on the up-take, one of the becoated professors immediately said, "Just look, my dear man, at this chap here without hat or coat. We've got to do something to help him."

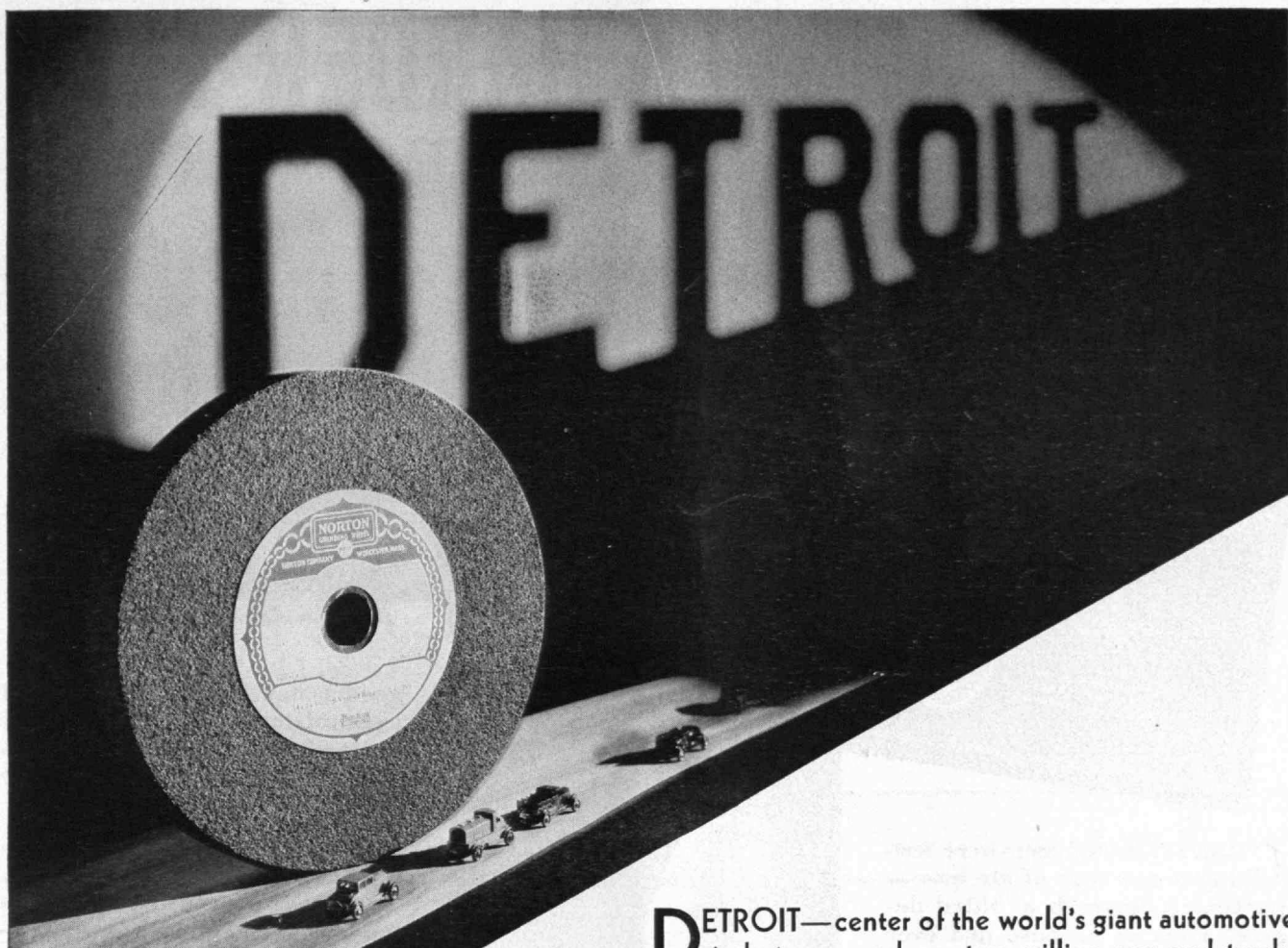
The Quidnuncs understand that the panhandler offered his contribution, but that it was gracefully refused.

C. Howard Walker, architect-philosopher, whose unmistakably patriarchal and professional figure graced the halls of Rogers for many years, was lately (so we have been informed by the *Boston Post*) taking a constitutional in the Boston Public Garden. He, too, was accosted by a panhandler and, with that readiness which we are coming to believe professors have cultivated for decoying panhandlers, he made a deal with the gentleman.

"I," he said, "will work the other side of the garden for a couple of hours, if you will work this side. At the end of that time we will meet here and split our gains." It was agreed, and the professor went back to his office. Two hours later he kept his appointment, and showed 50 cents. The genuine panhandler plunged his hand into a side pocket and pulled forth a great collection of nickels and dimes. The total was \$4.30.

Looking with obvious amusement at the surprise in Professor Walker's eyes, the panhandler, with professional arrogance, said, "You don't do so well; here's your share. You are still too new at the game."

THE QUIDNUNCs



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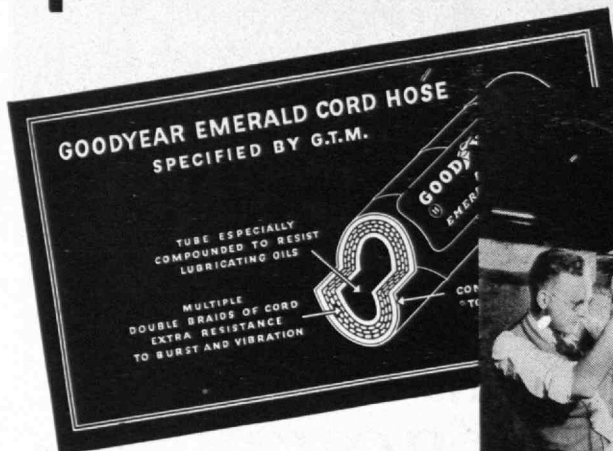
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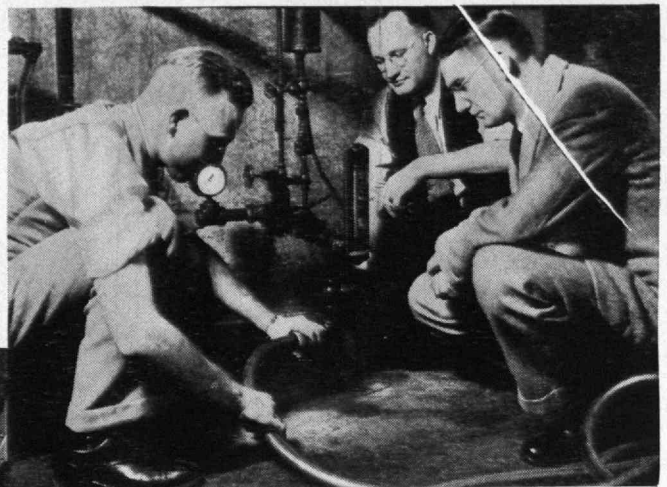
For air hose gets cruel and unusual punishment, even in everyday service. Heavy-laden trucks may run over it, cracking the carcass. Hot oil works through the line, disintegrating the tube. Dragging over rocks cuts the cover.

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good as new. Again and again and again. Other hose cracked and split—but that new multiple-braided carcass came back under **TWICE as many impacts!**

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The trip-hammer test

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Irazu Volcano, Costa Rica, at 11,000 feet. Note that the smoke and steam arising from the crater form a profile similar to Padereuski's, the noted pianist

Jones

THE TECHNOLOGY REVIEW

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VOL. 37, NO. 6

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MARCH, 1935

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Stairwell, from a photograph by William Rittase

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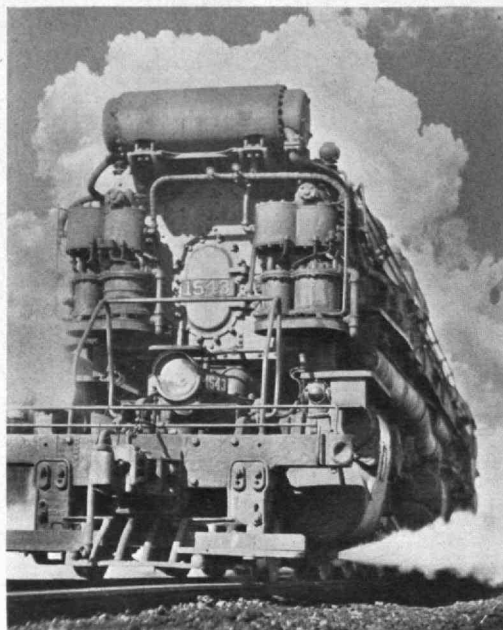
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THE TECHNOLOGY REVIEW

Vol. 37, No. 6



March, 1935

The Trend of Affairs

Notes and Observations

AFTER the lean months of mid-1934, business indices seem to have turned upward again, and this affords some comfort to those who still pay attention to business and statistical graphs. More reliable harbingers of a long delayed industrial spring, we were reminded on February 2, may sometimes be found by the old Candlemas Day method.

One of the hibernating ground hogs that has at last come out of the hole is the German inventor. In the good old days these fellows haunted the offices of every American corporation which was known to be interested and engaged in the promotion of inventions. Now they have turned up again, mostly with the same old ideas that were apparently put in moth balls in 1929. The plot remains the same, though the cast is new. Through an unimpeachable contact, a reliable friend of the executive to be approached, comes the word that he has just been in touch with a couple of men who seem to have something of interest. In due course these men turn up. One of them is a German, who has lived in this country, and is always merely a sort of friend, who is steering his companion through the mazes of American business. The other is a migrant, just over

from Germany, who "spitch" little English, and is visiting some relatives here. He, the story runs, has agreed with the inventor, who lives in Germany, to see what he can do about the marketing of the invention here. The invention is nearly always chemical (probably trading on the awe in which German synthetic chemistry was once held), and the representative, who is never the inventor himself, knows little about it, but is provided with beautiful samples, usually of a fireproof, waterproof, light-weight nailing concrete or an imitation marble. He always wishes to license nebulous and never-disclosed patents by states, or to sell outright, and the figure mentioned is never less than a quarter of a million.

The samples are always intriguing, and a long conference finally wears itself out when the Germans refuse to say anything definite about the ingredients, the patent situation, or, indeed, anything else, except the properties of the product, which are, of course, miraculous. No affidavits, no letters, no proofs of any sort are available.

It has always been a mystery how so many different Germans have access to the same inventions; and how these promoters live is still more remarkable, for they are always well dressed and plausible. Unquestionably some sort of a complicated "con" game, the situation is never

BAEDEKAR

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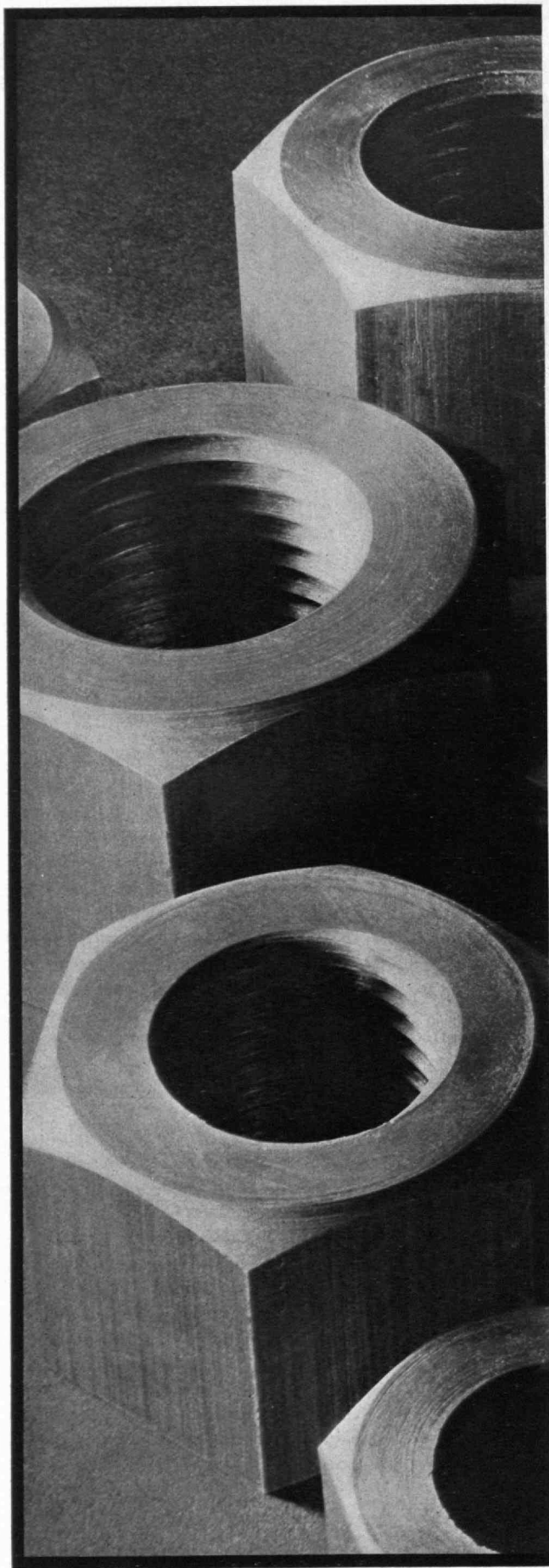
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Bourke-White

pushed to the point of developing the plot, even though the harassed American executive shows interest. It would be a fascinating and rewarding piece of detective work to trace these men and see where they finally come to rest. In lieu of that, to at least one observer we know, their reappearance at this time seems to be a sure indicator of some kind of change for the better in business conditions. Certainly such men could never thrive except in periods of loose corporate budgets and loose management of speculative ventures. They are clearly too canny to waste their time unless they felt that budgets and management had either already returned, or were about to return, to the frenzied days when every business man used the long-distance wires and extra-fare limiteds to Southern California on the slightest provocation.

SOMEONE in the National Research Council has a brilliant *eye* for the fitness of things. In a recent bulletin of that body we note the salient fact that the chairman of the Committee on Aerial Photographs (Division of Geology and Geography) is C. H. Birdseye.

ENGLISH scientists, like English gentlemen, enjoy bombarding their national publications with epistolary debate. One that has been running for several weeks in *Nature* may seem to the serious-minded applier of science a singularly fruitless discussion. It all started when somebody asked a perfectly pertinent question. Men, he recalled, suffer bends if they emerge too suddenly from subaqueous depths. Whales, also mammals, appear, on the other hand, to be able to ascend and descend with tremendous rapidity. Why?

The problem divided itself at once into several distinct controversies. In the first place, did whales go so deep after all? General opinion was that they did, and evidence was presented as to the amount of line taken out on this and that whaler, while some reported that occasionally Greenland whales actually died from suffocation on the bottom. Did whales ascend rapidly? again echo answered, "Yes."

Next point of assault was the reason why humans got bends. That was easy. In the depths, nitrogen was forced by pressure into the blood. At rapid rising it spurted out like the fizz from a bottle of Louis Roederer. Then why not from whales' blood, too? Here, one Mr. A. H. Laurie stepped to the fore. He found, it appears, that whales have in their blood bacteria-like organisms which fixed the nitrogen as it was forced in. These he called "X." To all this Professor August Krogh, of the University of Copenhagen, awarded the Bronx cheer. The process, said the doughty Dane, would be much too slow. The controversy continues.

Shades of Herman Melville, who would say at once, "But, Sir, whales are not men." Still, it never pays to be too "high hat" about apparently inane discussions. From this one may yet come a hormone.

WITH a few notable exceptions, the revolving and rising stages first developed in Germany have made no serious incursions into American dramatic technique, except to serve as a vehicle for the elevation of a movie-palace orchestra. There is little hope, either,

contemporary finances being what they are, that American audiences will soon have an opportunity to see a new extension of the device divulged to a bewildered audience at the Bavarian State Opera in Munich.

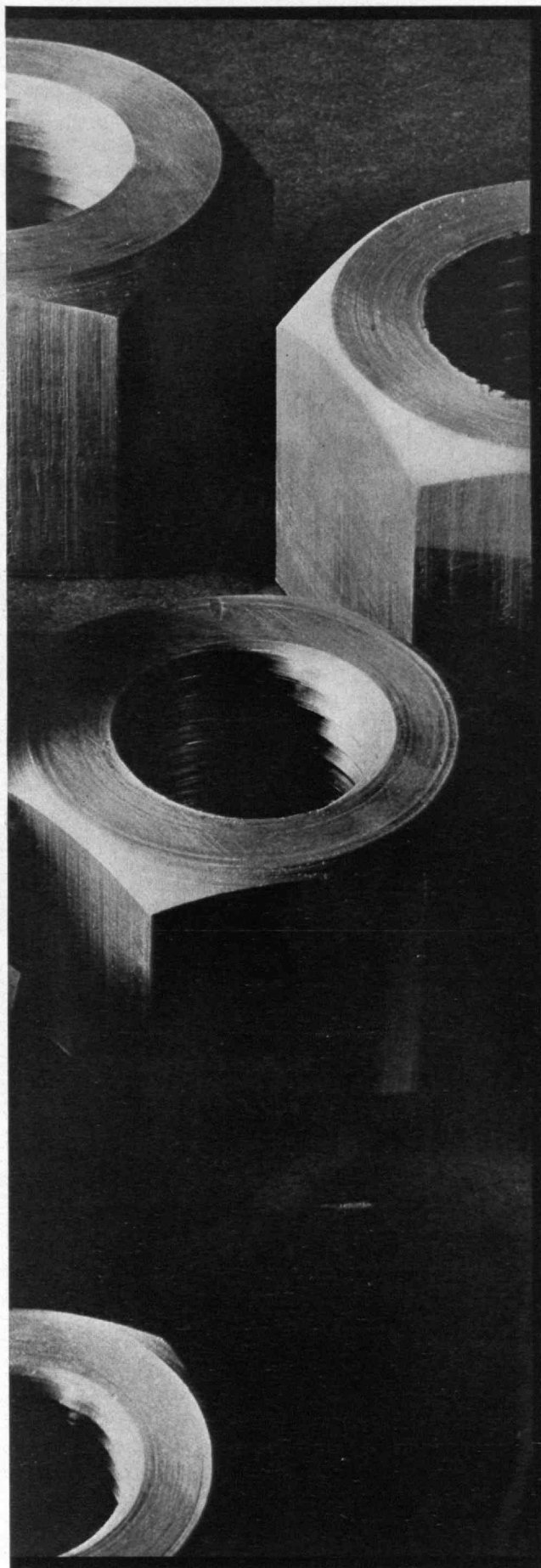
Until this development, these stages had been used principally to permit pre-setting of elaborate scenes, and thus to diminish the time interval between curtain fall and rise. Now, however, the ingenious Germans have taken the bull by the horns, and, by permitting the audience to see the stages moving, have succeeded in portraying, in fairly close approximation to realism, the rise of the gods into Valhalla in the last act of "Rheingold." Here, in a way, is an ironic turn of fate. Sixty-five years ago, Wagner left the same theater, furious because the stage mechanics could not carry out his ideas, and thus deprived himself of witnessing the *première* of this very same opera.

The newest device appears complicated and the results even more so. Six Rhine maidens are used instead of three, although only three appear at a time. None of them sings, this being left to less prepossessing persons with better voices. The mimes are operated really as marionettes, their swimming motions being controlled by other operators below. When the stage finally rises, gods and all, the results must be awe inspiring.

It seems a serious question, however, whether this effort toward giving reality to Wagnerian dreamings is not too ponderous for its own good, particularly in an age when the stage has intelligently left realism for suggestion. Certainly Wagnerian impressarios can never go whole hog. The goats of Fricka's cart are obstreperous. It is pretty hard to see how the Rhine can ever be made to rise over the whole stage in the last act of "Götterdämmerung." Most serious, however, is the conflict which arises when Valkyries, and particularly Brunhildas, have to cope with real horses. Dramatic sopranos, being bulky and temperamental, are better fitted, perhaps, to cope with Pekingese dogs than with horses; it seems unlikely that the real horse on the stage will ever be anything but a danger. Brunhildas unanimously walk gingerly around good old Grane, their best-loved steed, in a manner that suggests, probably not untruthfully, that that poor old hack is just waiting for a good chance to launch a well-aimed kick at the singer's midriff. And we wouldn't blame the horse, either.

Little Noises Shake 'Em Up

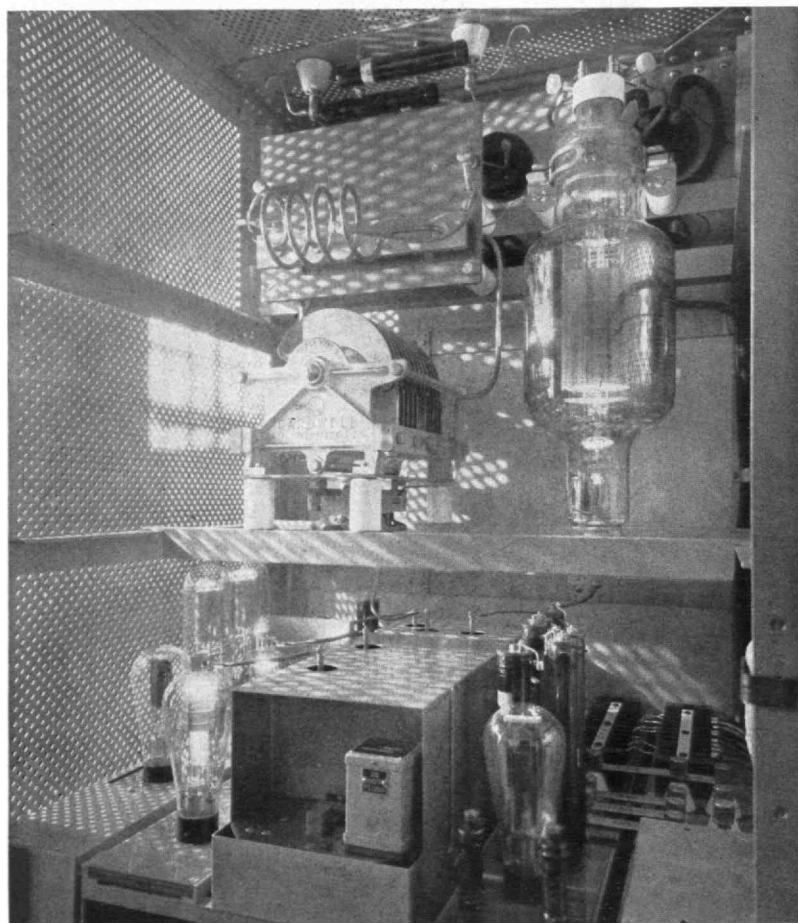
SOUND produces mechanical effects. The voice causes a trembling in the diaphragm of a microphone or telephone transmitter. A similar trembling reproduced by electrical means at the other end of the line, or in the radio loud speaker, again produces audible and intelligible sound. Mechanical effects produce sound, completing the cycle of changes. Explosions make the windows to shake and houses to rock upon their foundations. Current investigations are showing that *supersonic* or *ultrasonic* waves, vibrations of the same nature as ordinary sound but so rapid that they are inaudible, or audible only as a high-pitched whine to the most sensitive ear, also produce mechanical and even chemical effects. Vibrations which have a fre-



Bourke-White

quency of 15,000 cycles per second can ordinarily be heard. Above that frequency they are said to be ultrasonic. Though the ear hears them not, they shake things up quite as much and in a more profound and subtle manner than the bigger noises.

The forces of chemical affinity which hold various kinds of matter in combination with one another are electrical in their nature, due, as we suppose, to the transfer or sharing of electrons between the atoms.



Transmitter, built by Bell Telephone Laboratories, for Central American radio-telephone service. Note the clean beauty that characterizes electronic engineering designs and equipment

The electrons, small particles of negative electricity about 0.000,000,000,000,282 cms. in diameter, possess the prime quality of ordinary matter, namely, the property of inertia. The fact has been demonstrated in various ways, perhaps the neatest proof of it being in the experiments which Richard Tolman, '03, carried out about 20 years ago. When a piece of metal in rapid motion was suddenly halted, the electrons within it, possessing inertia, kept on moving and produced a current of electricity in the metal. The same experimenter during the War demonstrated that the gas which exists in the space where a high explosive has detonated is ionized and is a conductor of electricity. The explosion shakes the electrons out of some of the atoms.

Ultrasonic waves, likewise, seem to shake up the electrons. If a nickel tube is wound with a coil of wire through which an alternating current of high fre-

quency is passed, the tube undergoes rapid small changes in its length (the phenomenon is known as magnetostriction) and, if the frequency is right, gives out an audible note. At frequencies above 15,000 it gives ultrasonic waves. If such a nickel tube is dipped into ordinary water, containing dissolved oxygen, an unusual reaction takes place because of the shaking up of the molecules, and hydrogen peroxide is formed.

Ultrasonic waves liberate iodine from a water solution of sodium iodide, an effect which is probably a secondary result from the primary production of hydrogen peroxide. Hydrogen sulphide and carbon tetrachloride are oxidized in a similar fashion.

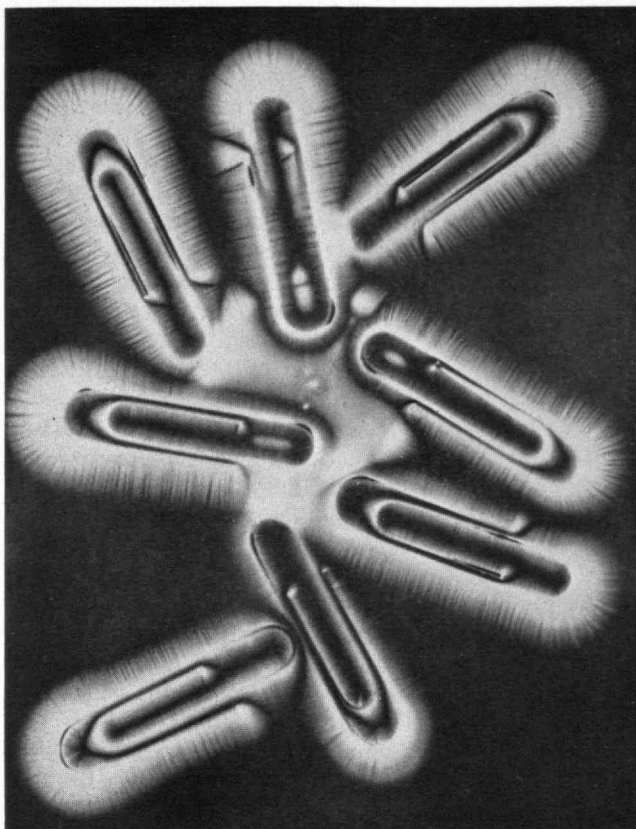
Ultrasonic waves kill bacteria, small fish, tadpoles, and so on, no doubt because the water in which these organisms live is an excellent medium for transmitting the energy of the vibrations, and they produce other effects which are clearly the physical consequences of a rapid shaking up. They produce heat, for example, in the interior of a cake of artificial ice, liquifying its center and converting it into "rotten ice." They drive dissolved gases out of solution, induce crystallization of supersaturated solutions, produce with water stable emulsions of oil, paraffin, and even of mercury, and cause less viscous liquids like benzene to form fogs. Future investigations are certain to discover other remarkable effects and, in the end, to add to our understanding of colloids, of the causes of chemical reaction, and of the inner structure of matter.

New Highways for Electricity

ADVANCES in the transmission of electrical energy, which may have important future applications in communication systems and in the distribution of direct current for power, were reported in the recent meeting of the American Institute of Electrical Engineers in New York. From the Bell Telephone Laboratories came the

announcement of a new type of communication circuit employing a wire which transmits frequencies from 0 to 1,000,000 cycles. Looking into the future of power transmission, the General Electric Company reported progress in the application of thyatron and phanotron tubes for long-distance transmission of direct current.

The new communication circuit, practical application of which will await future developments, was made possible by building a wire within a hollow tube. Both wire and tube act as conductors, forming a coaxial pair having a capacity 100 times greater than older types of circuit. The new circuit opens up the field of television to wire transmission. Television has, hitherto, shown most promise in connection with radio transmission. In the field of telephony the circuit makes it possible to transmit 200 separate conversations over one pair of conductors, and affords excellent facilities for the high-quality transmission of music.



By Leonhardt from Publishers' Photo

High voltage electrical discharge from ordinary metal paper clips

The new wire is carried in a tube half an inch in diameter, and is said to be capable of transmitting frequencies up to 1,000,000 cycles, and possibly higher, without causing interference. Development of the wire was brought about by utilization of what is known as the "skin effect," which indicates that electricity chooses to travel on the outer surface of a conductor. In the new wire, million-cycle frequencies are transmitted on the outer surface of the inner wire and on the inside surface of the tube in which it is enclosed. The outer surface of the tube is employed as a shield to disperse interfering frequencies. The new method would make it possible to transmit music without the necessity for merging two or more telephone wires, as is now the practice in transmitting radio programs to the various stations of a broadcasting network.

The report of the General Electric Company on the possibilities of increasing the range of direct power transmission grew out of successful tests on an experimental power system in which those capable electronic servants, the thyatron and phanotron tubes, were employed. The possibilities of such a system have long been

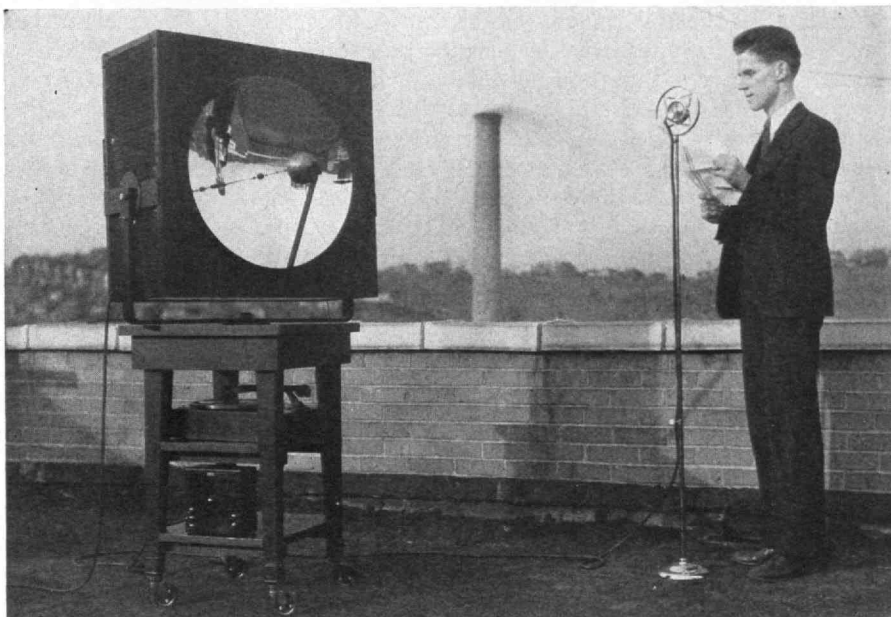
known and were forecast in a description of the thyatron tube in *The Review* for March, 1931.

As a transformer the thyatron tube can change alternating current into direct current, or invert direct into alternating current. It has the power to change frequency, opening many possibilities for the operation of special equipment. The thyatron is not unlike a vacuum tube, for its output current may be started, stopped, and varied by minute quantities of power. But in certain characteristics it is a million times more sensitive than the ordinary vacuum tube. It acts more swiftly than a relay, and its efficiency in high-power operation is said to be approximately 97.5 per cent. Thus, by using thyatrons, alternating current might be rectified to direct current at Niagara Falls, transmitted to New York, and there reconverted to alternating current. At any point along such a line direct current could be withdrawn, converted again to the original alternating form, and applied for practical use. Furthermore, additional current may be introduced at any desired point, on such a system, by the simple process of rectification. The danger of flashovers, always present when short circuits occur in direct-current systems, is said to be eliminated by the new method of transmission.

The experiments at Schenectady indicate that when the demand arises, direct current will be available wherever it is required.

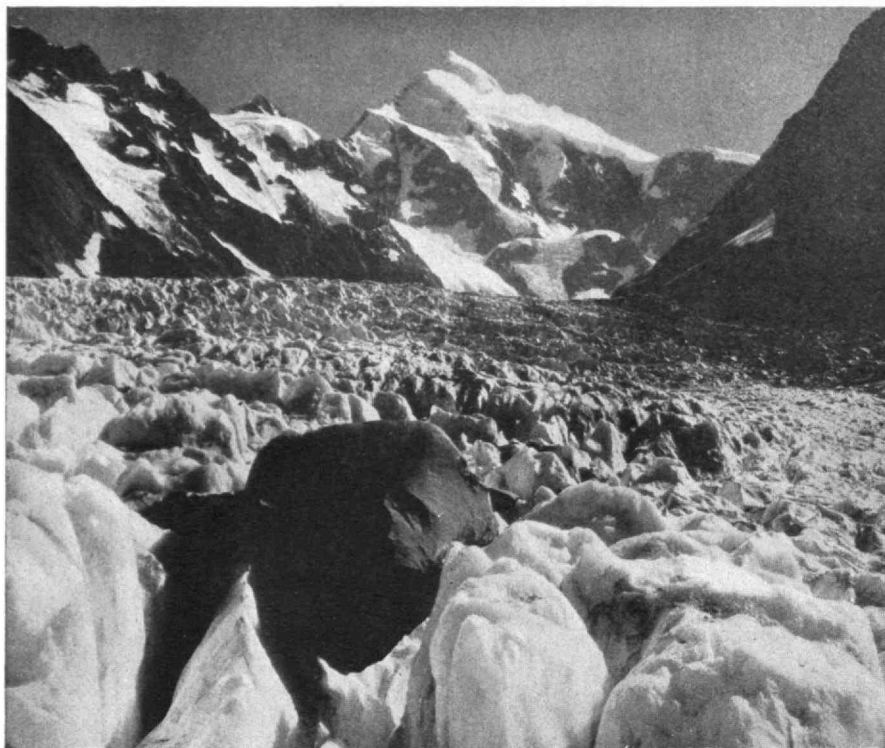
Cities of the Deep

AN ANCIENT Chinese city, with its walls, streets, and houses clearly outlined, has been discovered at the bottom of Lake Tai, which lies in northeastern China. Fishermen, poling their boats across the lake, the level of which has been lowered by a prolonged drought, found this ancient city, and its identity was



Science Service

G. R. Kilgore, research engineer of Westinghouse Company, broadcasting on radio waves only a little over three inches in length. In the microphone the voice is turned into electric impulses which are sent into space at the focus of the mirror. The mirror sends out the signal as a parallel beam. A similar mirror receiver several miles away picks up the message



Science Service

How huge boulders of the ice age were transported on the humps of slowly creeping caravans of ice is strikingly exemplified by a modern instance, photographed by the Washburn Alaskan Expedition of the Institute of Geographical Exploration, Harvard, in 1934, at Crillon Glacier. The boulder may move only a few feet, or even a few inches, in a year; but glaciers are very patient, and in the end carry their burden many miles

established by the legend of the lost city of Sanyang, a flourishing commercial center which disappeared in the flood which created the lake hundreds of years ago.

Discovery of the drowned city of Sanyang, reported recently by the National Geographic Society, recalls legends of other cities, islands, and continents, that lie beneath the sea in various parts of the world. Most colorful of all these is the story of Atlantis, the huge island which is supposed to lie beneath the waters of the Atlantic, beyond the sentinel Pillars of Hercules in the Strait of Gibraltar. In *Timaeus*, Plato says that Egyptian priests described the island as a country larger than Asia Minor and Libya combined. Its people, according to legend, had once overrun the islands of the Mediterranean, meeting resistance only from Athens. Later, the mysterious continent was identified with many other countries, including America.

Then there are the legends of the Blest, or Fortunate, Islands of Greece, the Welsh Avalon, the Portuguese Antilia or the Isle of Seven Cities, and St. Brendan's Island. Many of these appeared on maps of the XIVth and XVth centuries, and daring mariners sought them on voyages of discovery.

Another colorful myth describes Lyonesse, the sunken land which is supposed to lie deep under the sea off the coast of Cornwall, England. Still another tradition has it that the Cornish mainland was once joined to the Scilly Islands.

Beneath the waters of the Bay of Douarnenez, on the northwestern coast of France, is said to lie the wealthy city of Is, or Ys, and peasants of Breton point to great stone blocks off the shore of Sein Island as the founda-

tions of the city. Debussy used the legend of Is in his composition "The Submerged Cathedral." Among the legends of Germany is one concerning a city of Vineta, which is supposed to lie under the waters of the Baltic Sea.

Other legends describe the Island of the Phæacians, the Island of Brazil, and Mayda or Asmaide, the French *Isle Verte*, and the Green Island of Portugal.

Tai, according to the National Geographic Society, is not the first lake fabled to contain sunken cities. Celtic legend places a great city at the bottom of Lake Killarney, and Tom Moore celebrated in verse the myth of a town supposed to lie at the bottom of Lake Neagh in Ireland. About 1282, a great tempest drove the North Sea over the northwestern shores of the Netherlands. Combining with Lake Flevo, the waters formed the Zuider Zee. A reclamation project, including a 20-mile dyke, has reclaimed more than 550,000 acres of the land which once lay beneath the Zuider Zee. Under its green waters, on which red-sailed fishing

boats ply, drowned cities are said to sleep.

Here and there at various places in the world is definite evidence of the existence of submerged structures. Near the site of ancient Carthage on the Gulf of Tunis in northern Africa, airplane photographs show long walls which lie under 30 feet of water a short distance from the shore.

Engineering projects have often wiped out cities and villages. When the Aswan Dam was built in 1902, in southern Egypt, it converted part of the upper Nile into a vast lake, submerging several islands, including Philae, whose buildings, the pillars of the temple of Isis, and palm trees towered above the water like masts of wrecked ships. Later, the dam was raised, and the structures of Philae are now seen only during the period of low water.

Cities are submerged not only by engineering works but by changes in the earth's crust, often caused by volcanic action. An elevation of the crust raised part of the coast of Alaska, near Mount St. Elias, 47 feet in September, 1899. A subsidence of the land in Greenland dropped Eskimo houses into the sea. In the Bay of Naples stands the ruin of an ancient temple which was once submerged. Later readjustments of the earth's crust lifted the land and revealed the temple, scarred by sea growths.

Babassu Fuel

FORTUNE-telling with palms is not generally of interest to those whose accuracy of scientific training causes them to avoid the guesswork of more gullible

members of society, but when the telling of fortune deals with the palms of Brazil, more specifically with the *babassu attalea speciosa* of the Brazilian northwest, we should sit up and take notice. These trees, growing 30 or 40 to the acre, are about 60 to 70 feet high at maturity, live fruitfully for some 200 years, and bear usually four bunches of nuts, 300 to 400 nuts to a bunch. During a period of 10 months the nuts mature to the size of a lemon and are shaped much like a lemon also, but here resemblance ceases, as they are toughly fibrous on the outside, have a mealy inner layer, and a very hard endocarp which encloses several kernels.

Locally we can recognize the tall, straight trunk of this tree in the building posts, the rotted stalks in the fertilizer, and the long, flat leaves from the crown of the tree in the thatched roofs; but it is not native ingenuity that gives this palm its economic significance, nor are posts, fertilizers, and thatched roofs the products which have been purchased already in fair quantity by Germany and other European countries. It is the oil of the kernels and the fuel value of the husks of the nuts, which have caused the Brazilian government to make careful studies and have prompted engineers to seek machinery that would crush the shell without damaging the kernel.

The Brazilian National Museum reports the following analysis of the kernel: "water, 13.21; oil, 66.75; protein, 2.60; cellulose, 2.51; sugar and other carbohydrates, 13.26; ozotated substances, nonprotein, 0.88; and ash, 0.79." An analysis of the husks tells us that they

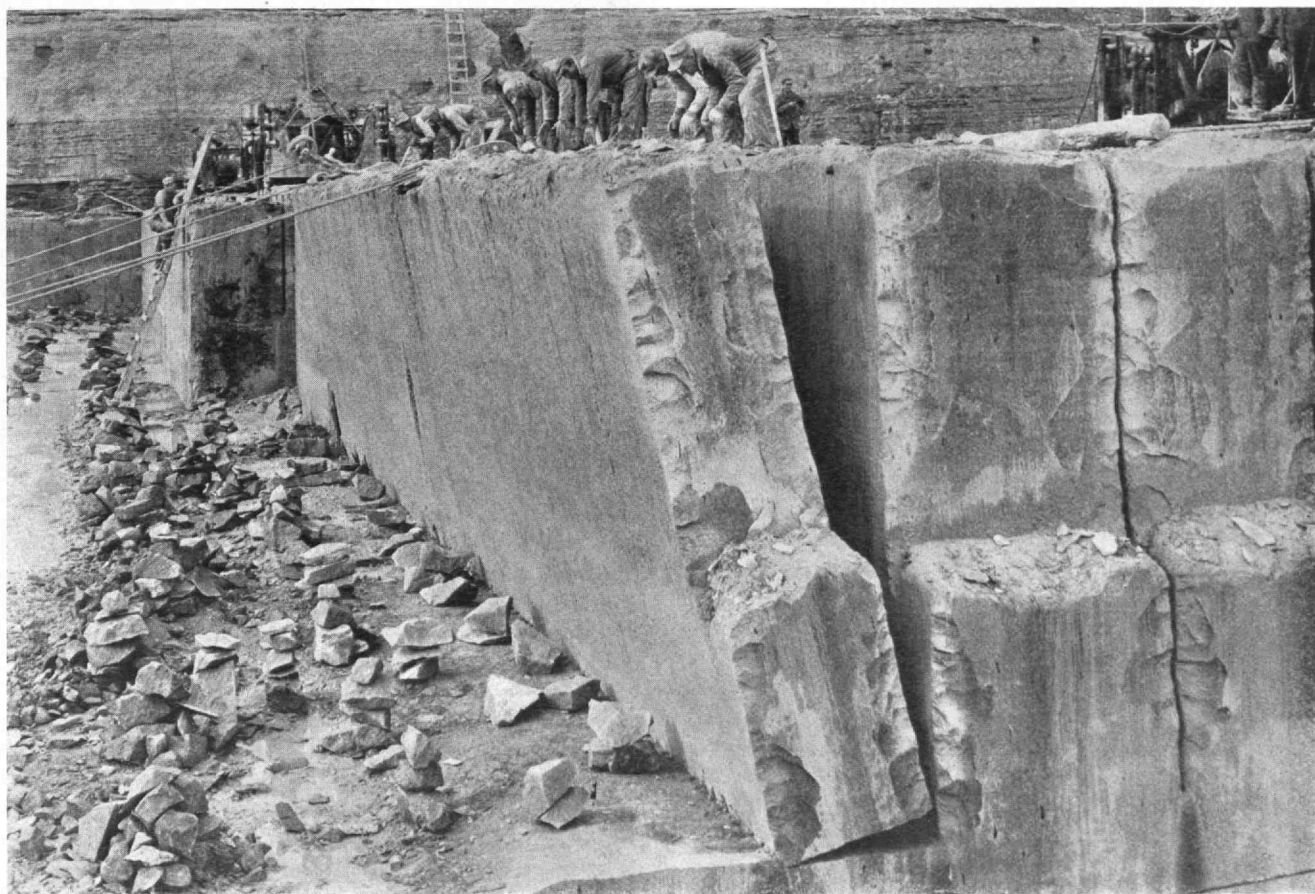
contain: "gas, 18; methyl alcohol, 1.3; crystalline acetic acid, 4.2; tar, 5.4; and charcoal, 29." The charcoal analyzed separately shows: "moisture, 7.7; volatile matter, 3.7; ash, 4.7; fixed carbon, 83.9."

Percentages alone do not tell us that the oil is a rich amber fluid which has a high food value, which can be refined for medicinal and pharmaceutical use, but which has its greatest value as a fuel for diesel and semi-diesel engines. Nor do mere percentages of charcoal in the husk, and of fixed carbon content in the charcoal, tell the story of Brazil's undeveloped iron resources waiting, in the absence of adequate coal, for some such fuel.

Economic machinery is being developed, although capital is still lacking for the exploitation of this product. Perhaps it is more than a guess to suppose, as the *Compressed Air Magazine* suggests, that the babassu nut would enable Brazil to compete in the markets of the world with large and yet undeveloped reserves of iron ore.

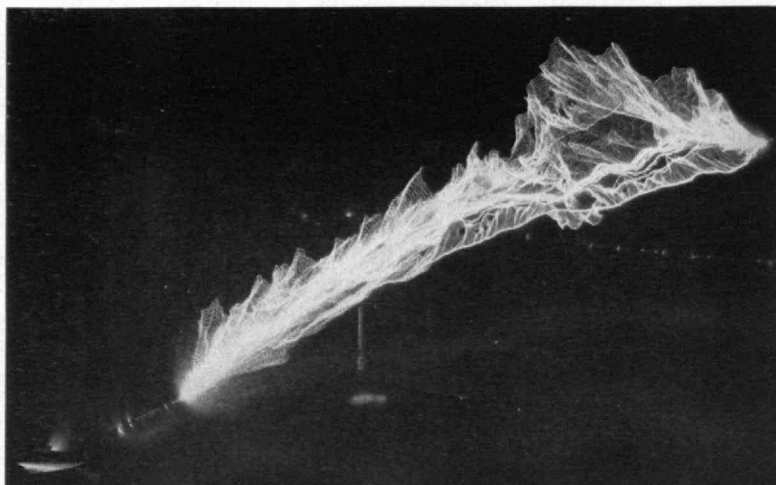
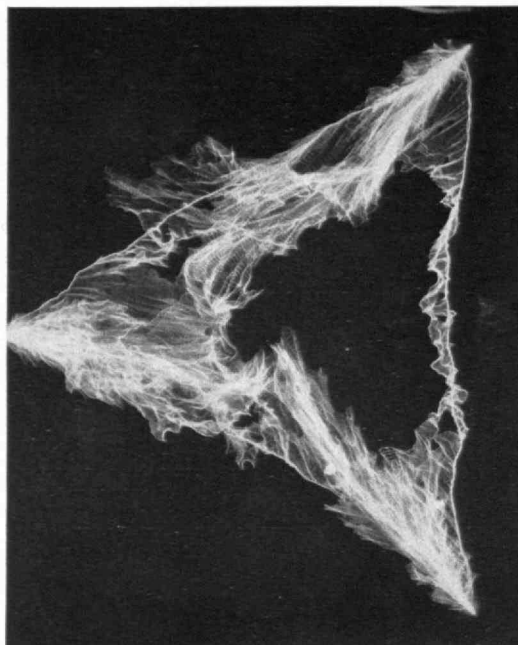
Miscellany

BRITAIN'S spectacular Minister of Transport, Hore-Belisha, not content with his anti-honking edict that, if possible, slowed London's traffic even closer to a halt than before, has added another complication to the perplexities of the London motorist. In many of the most important places London's Finest have carefully painted great bars of white across the thoroughfares. These bars simply mean that a pedestrian has



Large-scale quarrying of limestone in Indiana

Bourke-White



General Electric

FABRICS OF FIRE

Above: 1,500,000 volts arcing 171 inches between sharp points. Left: 1,000,000 volts, 3 phase 60 cycle, arcing 108 inches between sharp points

right of way at all times. A bobby, standing by, watches, without benefit of traffic lights, to see that motorists observe these pedestrian rights. British citizens being what they are, it is possible that the walkers will not abuse their new-found independence. One shudders to think what the result would be here, a result that could best be calibrated in glares from irate elderly ladies, glares per hour. Meanwhile, most of London is eagerly waiting the day when Hore-Belisha, who toots violently from one end of London to the other on his private motor bicycle, inadvertently clips a pedestrian in a no-pass zone.

A THIRTY-SEVEN ton seaplane with a passenger capacity of 70 has been launched in France. It is powered by six motors of 850 h.p. each, is 104 feet long, 30 feet high, and has a wing spread of 162 feet. Complete with a bar, kitchen, *de luxe* cabins with private baths, and other first- and second-class accommodations, the plane cost over a million dollars, has a cruising speed of 145 miles per hour, is designed for service over the North or South Atlantic.

A NEW device for accurately measuring the depth of shoal water has been developed by the United States Coast and Geodetic Survey. Akin to the fathometer, which has proved of great importance in navigation for making soundings, the new instrument is expected to be of tremendous value in shallow waters in which no other instrument has been effective, not only for navigation but in charting new highways of commerce.

LANCET, the English medical journal, reports the development of an anti-influenza serum from the blood of ferrets, horses, and mice. The horse, incidentally, made insulin possible. The men who made the serum are Dr. C. H. Andrews, P. P. Laidlaw, and Wilson Smith. Last year they isolated the influenza virus.

A NEW x-ray technique developed by Dr. Clarence O. Simpson of St. Louis makes it possible, we have been told, to detect pyorrhea 10 years in advance of its appearance. By this method cavities also indicate their development a year or so ahead. Think of worrying over an impending cavity for a whole year!

THE private life of the Loch Ness sea monster, which the beast has been able to keep quite secret, is being investigated by the deep sea explorer, J. E. Williamson. He plans to use a photosphere, a long tube for delving into the dark, damp lairs of Loch Ness. A world broadcast will chronicle this underwater peeping.

KING Albert Canal, second section, a waterway of great strategic significance, which links Liege and Antwerp without crossing Dutch territory, has been opened. Started in 1930, it is scheduled for completion two years hence.

THIN metal, aluminum and copper included, is being used to fireproof wooden partitions and other parts in British naval vessels. Many parts once made of wood are now entirely metal. When wood is used it is fireproofed by a special process.

A NEW type of camera which, with a projecting device, permits photographs of the time element in human labor, has been developed by the International Bedaux Company and the Eastman Kodak Research Laboratories.

FLEXIBLE waterproof thermoplastic film has been developed by a mid-western paper company for wrapping purposes, where a material highly resistant to moisture is desirable. It seals to itself or other materials by heating. Pliaform, another new material, developed from rubber by the Goodyear Tire and Rubber Company, is now being used in the ever expanding field of wrappings.

Experiment in Dayton

The Underrated Challenge of Subsistence Homesteading

BY EDWIN S. BURDELL

By Way of Introduction

BECAUSE the subsistence homestead (or farmstead) is one of the most promising, yet unfamiliar, social inventions brought into prominence by the depression, *The Review* presents below a case history of one of the earliest projects attempted in this country. The Dayton experiment, described by Dr. Burdell, holds additional interest because it was not originally a federal undertaking, and because its eventual federalization wrought changes that should be known.

The subsistence-homestead idea, originally developed in Europe and successfully used there, was incorporated in the NIRA passed in the summer of 1933. Section 208 of this Act appropriated \$25,000,000 "to provide for aiding the redistribution of the overbalance of population in industrial centres" through assisting in the establishment of homesteads. There are nearly 60 federal homesteads already approved, each containing 25 to 300 units of about five acres each. The first of these was Arthurdale, a mining community in West Virginia. There are garden homesteads for industrial workers who have jobs and subsistence homesteads for those without jobs, both in industrial and agricultural regions.

The aim of the subsistence homestead is to help poor families to get "a more secure and satisfactory living through a part-time combination of industrial employment and subsistence agriculture." — THE EDITOR.

AS FAR back as September, 1932, Dr. Elizabeth Nutting, secretary of the character-building division of the Council of Social Agencies at Dayton, conceived with her associates the idea of training the marginal worker and the unemployed to be somewhat independent of cash relief by incorporating them into a city-wide scheme of production of goods for consumption. Many of the 30-odd production units set up undertook gardens and the canning of the products. This food was then exchanged with other units for shoes, woven materials, bread, and clothing. The surplus was disposed of for cash at the city commissary. However, the difficulties of exchange, purchase of raw materials, merchandising, motivation, and management led to serious complications and with the closing of the city commissary in March, 1934, the whole production unit scheme (as distinct from the homestead project) underwent liquidation.

Because of the complexities as well as the fancifulness of the production scheme, no animosity was aroused in the community, except perhaps in a few retail dealers



Keystone

Families living in conditions like the above do exist, and subsistence homesteads are offering them a new way of life

Below: One of the group of 50 houses now completed and occupied in a subsistence community at Reedsville, W. Va.

"A 'subsistence homestead' denotes a house and outbuildings located upon a plot of land on which can be grown a large portion of the foodstuffs required by the homestead family. It signifies production for home consumption and not for commercial sales. . . ."



Acme



Acme

Eighteen persons formerly occupied the above house. Such inadequate homes are being abolished at Alta Vista, Va., by subsistence homesteads renting from \$6 to \$20 each

whose business was somewhat affected. Then, too, the purchasing power of the members of the units was so slight that no one really worried about the innovation. Imagine, on the other hand, what suspicions would be aroused if a group of highly trained workers — with considerable purchasing power either from savings or by part-time, well-paid employment — set up a large-scale plan of production for consumption instead of for profit! As soon as their scheme appeared to be likely to succeed, remonstrance, protest, and sabotage would be community wide. The original set-up of the Dayton production units was unsatisfactory for a variety of reasons: incompetence, inherent complexities, the presence of the helping hand from the top down instead of the vigorous thrust of the fist upward, the benign indulgence, up to a certain point, of wealthy citizens of a philanthropic turn of mind. Never was the scheme understood as a real threat to the profit economy and even if it had been, it never would have been taken seriously by reason of the puny resources, the make-shift management, and the poverty of the participants.*

* As a matter of history, realization of the threatening aspects of the Dayton project grew rapidly in the summer of 1934. Opposition to the project headed up in a few real estate promoters and among petty politicians. The latter feared that there was great danger that their political set-ups in the townships would be upset by the vote of homesteaders moving in in fairly large groups; the former group, who make money through building suburban homes, were also alarmed by the movement of people to the country, and successful building of low-priced homes. Thus the storm rose and the stories which were circulated regarding the Homestead developments were amazing. The First Homestead Unit was a colony of nudists (some college boys had left off their shirts while working on houses); they were building disreputable shanties, they came from an undesirable pauper class, they were high-brows who did not need government help, they would refuse to pay their taxes and flood the schools with their children, and so on. Perhaps the greatest stress was on the undesirable houses which were said to have been built, so the completion of the unusually beautiful Holman house — built according to plans, and at surprisingly low cost

The original homestead plans developed by Miss Nutting and Mr. Borsodi were collateral ideas with the production unit. The general purpose of the subsistence homestead is to make the industrial worker relatively less dependent on his job for security and able to provide all that goes to make up the elements of the good life. Its aim is to make available a modest home and three acres of land at a rent of from \$10 to \$25 per month, depending on the conveniences and comforts the homesteader wants and is able to pay for. The figure is low because in the original Dayton plan the homesteaders had a labor exchange agreement whereby each one was to contribute his labor to the construction and agricultural activities of the others in return for a similar service to meet his own needs. A labor finance committee was provided which was to "pay" each man each week for so much work at a specified rate. Thirty per cent of these labor credits were to be cashed in order to obtain material for construction or agriculture. The balance was to stand to his credit to be liquidated by work performed by others to meet his requirements. The rates were set by the directors of the homestead corporation and at the prevailing local non-union rate.

With the addition in the winter of 1933-34 of Messrs. Joseph, an experienced animal husbandry man and agriculturist; Wall, an engineer and contractor, as construction superintendent; and Agenbroad, as architect, the construction of houses, roads, wells, and so on, moved forward. Federal money for loans to individual homesteaders came too late last fall to enable anyone to start building and the \$359,000 thought available in the spring of 1934 to the Unit Committee for materials never became a fact.

WHEN 165 families, or enough for four more units, were ready and eager to start homesteading, had applied for loans, and the funds allocated by M. L. Wilson, then Director of the Subsistence Homestead Division of the Department of the Interior, were not forthcoming, the Unit Committee brought suit against the Division (in June of last year) for breach of promise. Whether or not Mr. Wilson's retirement from the directorship had anything to do with this is not definitely known, but he left that post the same month. At the same time and in spite of protests, the Dayton project was taken over by the Department of the Interior to "safe-guard the government's interests." The following comment by a member of the Unit Committee, which appeared in the Dayton newspapers on June 25, is significant:

"The action of the Unit Committee, which was taken with great reluctance only after every effort to make the Secretary of the Interior carry out promises made to the committee, brings to a complete standstill all work on this project. Some time ago the Secretary of the Interior issued a general order that all subsistence homestead projects should be federalized. In spite of the recom-

— was disconcerting to say the least. People were coming out to see it by the hundreds and a few days before its completion remarks were made that here was the greatest threat to building interests engaged in making high profit. It was disappointing, therefore, that on the day the house was completed it was mysteriously burned to the ground. The origin of the fire is still unknown.

commendation of responsible officials in the Subsistence Homestead Division that the Dayton project should not be included in this general order because of the nature of the Dayton plan and the promises which have been made to the Unit Committee, the Secretary has insisted upon federalization and has disregarded the promises to the Committee made by his own appointees.

"The nearest analogy for the legal situation which federalization would cause is furnished by American Indians living on Indian reservations. The land on the federalized projects would be owned by the Federal government and would be, therefore, exempt from all state and local taxation. The Unit Committee felt that it could not take part in a program which involved the withdrawal from local taxation of property which would be valued at nearly one-half million dollars when all the four new units were completed. Furthermore, it could not ask the homesteaders to run the risk of being denied voting privileges because they have become wards of the Federal government domiciled on government-owned reservations.

"A further reason for refusing federalization is that the record of the Secretary of the Interior on all the projects under his charge is one of such scandalous procrastination that federalization would represent a useless sacrifice of both the Dayton plan of homesteading and all hopes that the homesteaders would have of securing homes this season.

"The Dayton project has been repeatedly investigated by various social and governmental agencies. It is recognized as an outstanding social experiment. It is a great pity that the Secretary's insistence upon governmental red tape is going to deny hundreds of citizens of Dayton an opportunity to build homes and to make themselves economically secure."

Apparently all that was planned in the way of labor exchange, freedom of the individual to plan and choose his own house plan, and increasing local autonomy is now abandoned in the interests of "getting things done" by federalization. As a matter of fact, reliable reports indicate that from June to December of the past year very little progress has been made. All decisions must be made in Washington. Action on the homestead itself must take place while the thinking is to be done in Washington. Men have actually been prevented from working on their own houses and the cost of the houses has been increased due to the charges being added for federal supervision and administration. Either one of two results seems inevitable: either the homesteader will not be able to afford it at all; or, he will be subsidized by the government, which is as unnecessary economically as it is bad socially and psychologically. The houses will now be built under government contract and turned over to the homesteaders, who will take their choice from among ten possible plans. The monthly installment payments from the homesteaders will run from \$16 to \$25 a month over approximately 20 years. The tendency of the government is to make of this a relief project, whereas under the old set-up it was hoped to demonstrate ways by which workingmen and middle-class people could raise their standard of living and increase their security on a thoroughly business-like, independent, and self-respecting basis. The homestead



Acme

This Arkansas cotton farmer and his family, dog included, seem happy about their neat modern home in U. S. Colonization Project No. 1. This family formerly lived in an ancient, leaky, three-room cabin

movement is neither a housing nor a farming experiment, but an educational experiment in teaching people a new way of living. If that can be accomplished under the heavy hand of government management, there is yet some profound sociological importance to this movement.

Lest many of the well laid plans of the original unit developers be shelved under the pressure of "getting things done," it is worth setting forth in some detail the more significant features of their original plan of self help.

Administrative expenses were not to be provided for directly but were to become available by the relinquishment by the government of interest for the first two years as well as by the differential between the rate on the loan to the Unit Committee of 4% and the rate of 5½% charged the homesteader. With this sum of money the Unit Committee hoped to complete the first unit of 35 farms in Liberty Township, as well as begin four other units, totaling about 200 homes, this summer. The ultimate aim of the Committee was 50 units of 35 families each within a radius of 12 miles of Dayton. The Unit Committee was incorporated under the laws of Ohio and each unit was to be incorporated. Loans were to be made from the Committee or sponsoring board to unit corporations for the purchase of land and installation of utilities. Direct loans in eight categories were to be made by the central board to individual homesteaders for construction costs, seeds, goats, implements, and the like. An administrative group in Dayton, set up under this central board, was composed of Ralph Borsodi, as administrator, Elizabeth Nutting as executive secretary, with a manager of the store which handled the production unit products as well as the garden produce from the homestead units. Also, there was a purchasing agent, an auditor, a cashier, a bookkeeper, a case worker investigating applicants, a personnel worker, and so on. (Continued on page 234)

Government and Technology

The Engineer's Place in Political Science

BY B. A. THRESHER

ALMOST everything has been found out," said Aristotle, "though sometimes it is not put together." In our impatience with the first part of this assertion, we may miss the profound significance of the latter part. We are, in fact, only beginning to "put together" a great many things which, taken separately, have long been known. This beginning runs back a generation and more in natural science, where fields once thought of as widely separated have developed important interconnections. Mathematics and biology have been wedded in the science of bio-statistics; more recently, radio-activity has invaded genetics. In the domain of applied science, such combinations as electro-chemistry and sanitary engineering illustrate the utility of combining diverse techniques.

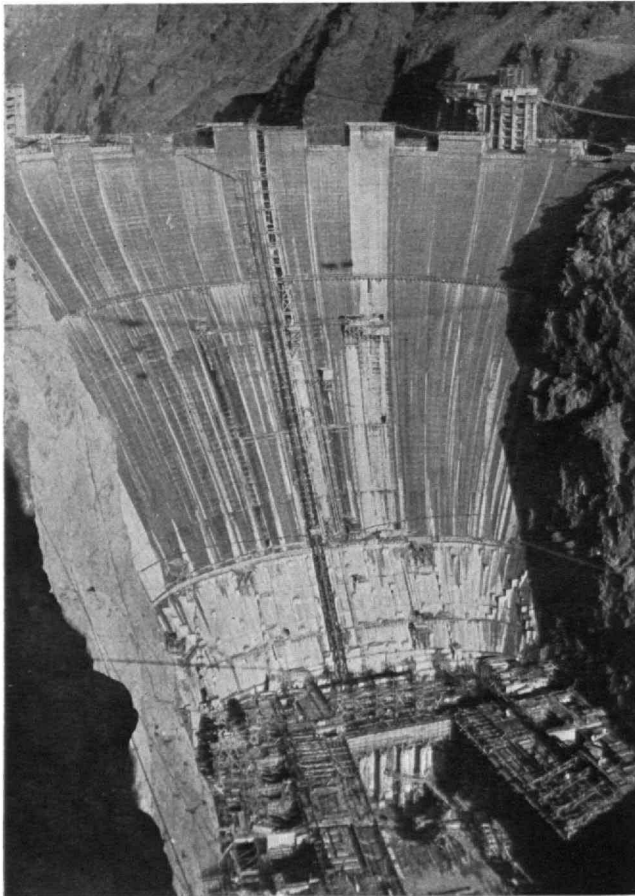
It is natural and inevitable that this integrating movement of thought should come to involve the social sciences, especially in their relation to engineering and the practical arts. The *rapprochement* has been carried

out from both sides. On the one hand, theoretical students of economics and sociology, such as Veblen, Ogburn, or Schumpeter, have recognized the march of technical innovation and sought to take account of its phenomena in their theoretical systems. On the other hand, engineering thought has begun to reach out into the wider field of social relationships. Frederick W. Taylor's original work in scientific management illustrates the latter tendency in a peculiarly positive form, for Taylor carried engineering method directly into the sphere of industrial relations. In the last five years, the lively interest in economic problems evinced by professional engineering bodies, though stimulated by the current economic disturbances, takes its origin from the same underlying movement.

In view of all these trends, it is becoming evident that much of the pioneering work of our generation will be done, not by specialists alone, but by men who stand, so to speak, in the gateway where diverse disciplines meet. Ours is an age of alloys in thought as well as in metallurgy. In a book recently published,* William Beard, '28, shows himself to be a gateway man. Trained both in engineering and political science, and co-author (with his distinguished father, Charles A. Beard) of "The American Leviathan," he has a suitable background for this task, which is to create a liaison between the art and science of government on the one hand, and the profession of engineering on the other.

The book is elementary in scope, and may be described briefly as an introductory text in American government, written for undergraduate engineering students having only the barest acquaintance with the subject and presumably some aversion to its pursuit on the ground that it lies outside their specialty. The novelty lies in the method of approach, which is via the contacts of technicians with governmental activity. In the words of the author, the book "lays emphasis on those aspects of government which particularly concern the engineer, referring students for the amplification of knowledge concerning government as law and politics to the numerous standard treatises by political scientists. My purpose has not been to furnish an encyclopedia but a suggestive guide to a field as yet almost unexplored, with the hope that other students will develop phases of the subject in detail. Not until numerous special studies have been made respecting the relations of technology and government will it be possible to write anything approaching an ideal treatise on technology and government in general." The significance of such a book lies more in its original viewpoint and in the possibilities which it opens up than in its contents in detail.

* Beard, William, "Government and Technology," An Outline for Engineering Students (New York: The Macmillan Company, 1934), p. 599.



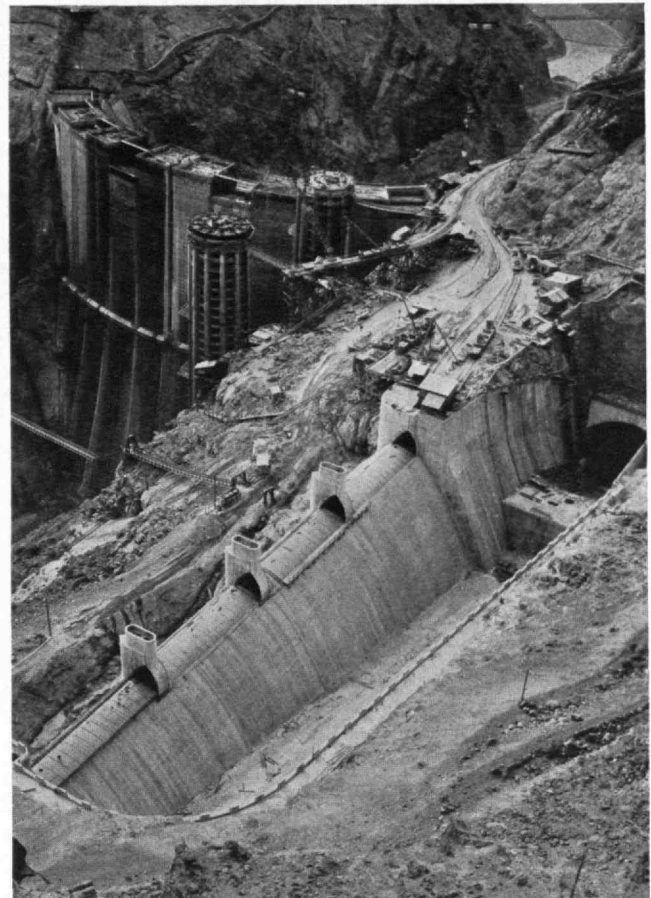
Bureau of Reclamation

Boulder Dam, on December 31, 1934, as seen from the Nevada rim of Black Canyon. Two and a half years ahead of schedule, storage of water behind the dam will begin this month

Now as never before, the study of government has, for engineering students, a straight "job appeal" which takes it out of the realm of the academic. As far back as 1914, remarks Beard, 30% of the members of the American Society of Civil Engineers were working for the nation, states, counties, and cities in official posts. Great interest would attach to similar figures collected today and extended to cover other branches of engineering. Nor does the field of direct government employment exhaust the professional interest of engineers in government. Few members of the profession can avoid encountering government administration, whether in the regulation of public utilities, the enforcement of public health requirements, building codes, protective labor legislation, and many other aspects. The appearance of this book marks a further stage in that tendency in engineering education which seeks to orient the engineer in the larger world within which he functions. It is a tendency which has already progressed far in providing engineering students with some training in business and economic subjects. As the circle widens, the field of political science must inevitably be included.

A ruling theme of the work is the constant conflict between "engineering rationality" and political and social forces which seem constantly to hinder the expert who proceeds with an eye single to his own technical objective. We see, abundantly illustrated, both sides of this conflict. Sometimes it is technology which gives way to more powerful considerations of sentiment, custom, or other manifestations of social behavior, as happened in earlier allocations of radio wave lengths in the United States. Sometimes it is social organization which yields to the logic of technical necessity, as when political boundaries are merged and obliterated to form a district for such technical purposes as flood control, irrigation, power distribution, or sanitation. The political and the technical interact constantly, and specialists in one field find it difficult to appreciate the compulsions which hold sway in the other. Discussing the question how far legislatures should consist of experts, the author observes: "*Perhaps it would be easier to give laymen the technical competence necessary for their work than to transform technicians into statesmen.*" (Italics ours.) Such a statement is a challenge to engineering education. Certainly the subject matter of this book emphasizes the necessity for training technical men beyond the limits of their respective specialties. The social, political, and economic implications of engineering must be grasped and dealt with by engineers.

An introductory chapter on the contacts of technology with government poses the problem. The growth of public functions in a single municipality, Detroit, is selected to provide an illustration which is worth quoting at length: "In 1836 the city embarked on the building and maintenance of a water and sewerage system. The year 1850 saw the first street lighting. Organized fire fighting was inaugurated shortly after the Civil War, followed in 1873 by a police alarm signal net. In the '80's, problems of health were tackled: quarantines for contagious diseases were established, a chemical laboratory was built, milk inspection was started, and rubbish and garbage were collected. Shortly before the turn of the century, a fleet of fire boats was purchased, a bac-



Bureau of Reclamation

Upstream face of Boulder Dam (December 20, 1934) together with intake towers and Nevada spillway. The top forms shown on the dam are at elevation 1,170 feet. By next fall sufficient water will have been impounded to start generation of electric power

teriological laboratory put in operation, and inspectors were appointed for the examination of plumbing, boilers, and electrical wiring. In 1902 the regulation of smoke was undertaken, followed in 1905 by street flushing. The development of the movie resulted in motion picture censorship as early as 1908. Growing traffic problems were responsible for the installation of traffic control in 1909. The skyscraper made imperative a program of elevator inspection in 1911. During the World War police auto patrols and the checking of refrigeration got under way. The year 1919 saw the beginnings of motor street sweeping. In 1920 the city took over certain street railway lines. Increased police efficiency was secured in 1921 through radio control of patrol cars. City water was filtered in 1923, oil burners and explosives testing began in 1925 and 1926, respectively, and zoning plans were laid in 1929. The latter year also witnessed the building of a city airport." When it is recalled that this description applies only to a single local unit of government, that there are in all 195,000 governments in the United States, and that recent years have witnessed unprecedented expansion in Federal activities, it becomes apparent that contacts between government and technology are now of major importance.

Mr. Beard writes in a descriptive, rather than an analytical vein, and herein lies both the strength and weakness of the book. He is at (Continued on page 232)

SOMETIME the latter part of this year, a New York business man may jam a brief case full of papers, pack a suitcase with razor, tooth brush, and a few shirts, clamp his bowler on his head and set forth to inaugurate a new era in transportation. Within a month he will be back at his desk, almost as though he had not just spent two weeks in Canton.

We might have picked any of a number of occasions as the high point of the magnificent project upon which Pan American Airways has embarked: the ordering, two years ago, of the fleet of giant flying boats; the sailing of the supply boats to construct the island bases, scheduled for late this March; the first Pan American flight to Hawaii by the *Pan American Clipper*, a Sikorsky test ship, scheduled for the near future; its first flight over the remainder of the route, with stops at the islands of Midway, Wake, and Guam, to Manila; the first flight with passengers and/or mail of the Martin Clippers sometime in midsummer. Since this is to be a trade route, to our mind the trade route of the century, let us rest our choice on the flight of its first trader.

What an overnight service between San Francisco and Hawaii, thence a weekly service to Manila with possible connections to China, Japan, and Java, will mean to American trade, to American relations with our island possessions and with other Pacific powers is beyond the capacity of this particular article. Pertinent data on such themes are that at the present time it takes six to seven days to travel between San Francisco and Hawaii, 14 days from San Francisco to Japan, three weeks from California to Manila, and even longer to the Asia coast. Obviously, the implications are tremendous.

What we do wish to elaborate upon is, first, the tremendous amount of technical development and organization that the airline requires; second, the great faith within the aeronautical industry in the ultimate success of the venture.

Plans call first for a line only as far as Manila. Later connections may be made with the China National Aviation Corporation (already partly Pan American owned, and completely Pan American operated) at Canton, with K. L. M. at Java, and with Japanese services.

The route to Manila divides into two main divisions — that from San Francisco to Honolulu and that beyond. The first will be made in a single hop (2,053 sea miles) and is, incidentally, 250 sea miles longer than the distance between Bermuda and the Azores. Until last year no American flying boat had ever covered such dis-

China

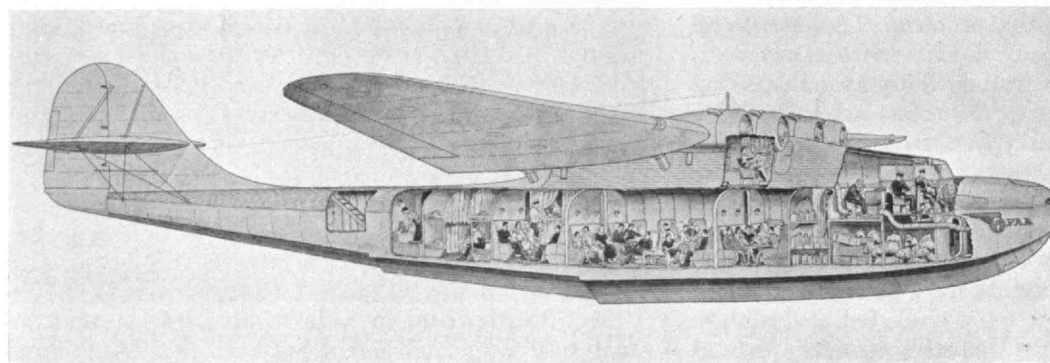
American Air Transport Strikes

By D. C.

tance even without pay-load. To develop equipment capable of flying the distance with a commercially practical pay-load and a large fuel reserve, Pan American proceeded two years ago to finance a program of large flying-boat development. The results are the Sikorsky S42 and the Martin 130.

The first S42 was launched last spring, broke an astounding number of world's flying-boat records in the process of testing, and was put directly into use on the line to Buenos Aires. A second has been launched and christened the *Pan American Clipper*. It has been fitted as a flying laboratory to make the initial transpacific runs, testing radio, navigating methods, fuel consumption, prevailing winds, and so on. Already it has made several practice flights in the Caribbean with the identical crew that is soon to take it to the Pacific. There is no intention, however, of using these 18-ton boats in regular Pacific service. They have been designed for, and are admirably suited to, the South American run. The Pacific work is to be allocated to the Martins which are licensed for a gross load of approximately 25 tons. One Martin is at present undergoing flight tests at Baltimore. Two others are nearing completion. By the time the *Clipper* has fulfilled its preliminary tasks, the Martins should be ready to begin actual commercial operations. Even with a fuel reserve of approximately one-third, these boats will carry from 12 to 18 passengers, and from one to two tons of mail on the California-Hawaii hop — a splendid performance; but the real significance of these boats lies in the promise they give for the future.

Their design is featured by what might be called the airplane's reprieve from the cube-square law; namely, the decreasing efficiency of large structures. Until a few years ago, most aeronautical textbooks made much of the fact that the lift of an airplane's wing increased as the square of its dimensions, while its weight mounted as the cube. Therefore, so went the reasoning, there was bound to be a steadily diminishing return from increas-



Interior arrangements of the giant Martin flying boats designed for transpacific service. Maximum seating capacity is 46. There are passenger sleeping compartments, a large lounge, and a galley. This month a ship sails out of the Golden Gate to prepare a way for it

Aviation

Bound

Out Across the Pacific

SAYRE

ingly larger airplanes. Subsequent developments, however, have indicated that the weight of structure needed for wings of externally similar shape need not increase as the cube of their dimensions because, as the size grows beyond certain limits, it becomes increasingly practical to have each part of the wing specialize in carrying only one type of stress with a large gain in overall efficiency. In varying degrees, the same principle holds true throughout the whole ship. The Martin also breaks new ground in using corrugated plating on its hull bottom and deck, in storing fuel directly in hull compartments, and in using a new type of sponson wing in place of the usual cumbersome wing floats. The result is a craft which weighs but 23,100 pounds empty, lifts a gross load of 51,000 pounds, cruises at over 150 miles per hour.

Suitable flying equipment is obviously the first requisite, but it was by no means the only extensive problem that is posed by the Hawaiian flight. Another of major importance is that of radio for communication and as an aid to navigation. A third is the development of an operations technique capable of extreme extension. A fourth item is the training of personnel to a pitch as near infallibility as is humanly conceivable. And there are others.

The answer to most of the problems was obtainable by just one method: long and continuous experiment under substantially similar conditions. Fortunately, long and continuous experimenting under substantially similar conditions is simply another way of describing the more than six years of continuous and extensive operations that Pan American has conducted on its Caribbean Division. In its early years it could find no available aircraft-radio equipment equal to its severe tropical operating demands. It developed equipment, therefore, of its own design and manufacture. It early standardized on code, instead of phone, to increase effective range. A 500-mile hop from Cuba to Venezuela required the perfection of radio direction-finding devices, of a celestial

navigating technique, of large boat-crew organization, of an operations system that functioned perfectly at long distances from the route-checking points. On a recent test run between Miami and Porto Rico the crew of the *Pan American Clipper* made continuous celestial and dead reckoning determinations of their position, checking them against directional radio bearings under both day and night conditions. The differential between the methods was less than one-tenth of one per cent.

The route from the Hawaiian Islands to Manila places no such demands upon ship and operating technique, for the islands at which stops are to be made are approximately but a thousand sea miles apart. Moreover by extreme good fortune, by some series of international vagaries, all of them are American possessions. One, however, is entirely uninhabited (Wake). Another has only a cable station and the small colony that operates the station (Midway). And Guam is well off the track of frequent steamer service.

Which brings us to the good ship *North Haven*, charter steamer of 7,000 tons. In lieu of the date of the first flight over the line by our hypothetical bowler-clapping business man, the most significant aeronautical milestone of the year is going to be the morning the ship sails out through the Golden Gate in late March for a four-months' cruise. For in it goes the most astounding array of material and personnel that has graced a sailing list in decades; several dozen sectional houses complete with furnishings, complete with all available vermin and rodent protectors, complete with specially designed insulation for tropical conditions, complete with electrical wiring, with food for the voyage, food for six-months' living after landing; garden seeds and garden tools; commodious refrigerating plants, galleys, and kitchen ware; pumps and Diesel generators; windmills, and salt water stills; septic tanks; pipes and plumbing; radio transmitters and receivers, with masts and spars; docking floats, sampans, and launches; a cow or two; special tools for aircraft maintenance; mechanics, radio men, managers; mess boys, gardeners, cooks and handy men (taken on at Hawaii); construction men, hand picked for exhausting and variegated work; crew, officers, ships stores, and a few — a very few — working executives.

By the time the *North Haven* returns, what is now but a line on a map will be transformed into a living, throbbing artery of world traffic. A new style traffic surely, new speeds, new types, new aims and ambitions. New Clippers for the China Trade!

The Martin 130, new clipper for the China trade, now undergoing extensive tests in Baltimore. It weighs but 23,100 pounds empty, lifts a gross load of 51,000 pounds. Its unique design and its probable route are described in the adjacent text



THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Toward a Better Public Service

POLITICAL observers agree that one of the greatest difficulties confronting any democratic form of government lies in the effective use of the expert. The problem, which has become more and more pressing in this country with every year of technical advancement and increased specialization, is two-fold. The first task is to find able men and women with adequate training for the public service; the second, to get them appointed to office. Whereas only through an enlightened, sympathetic, and insistent public opinion can the expert hope to gain his rightful position of responsibility in our government, it is to the universities and colleges that he must look for his education.

In response to this increasing demand for college-trained men with an understanding of economics and government, the Institute has designed a six weeks' intensive course in public service administration, to be given next summer under the auspices of the Department of Economics and Social Science. The course is especially planned to give students who are preparing to enter government service a broad survey of current administrative problems. It will be conducted by authorities in various fields, and a number of prominent government officials will participate as lecturers on special phases of political activity.

The course will be open to a limited number of students with a background of physical and social sciences sufficient to insure intelligent participation, and will carry credit toward a degree.

Professor Charles A. Beard, the eminent historian and political scientist, will have charge of instruction in the constitutional and legal framework of public administration, the place of engineering and technology in government, and the controls exercised by the courts.

In the field of public finance and taxation, Professor Donald S. Tucker of the Institute will direct a survey of methods of raising revenue, taxation and assessment problems, and the direction and economic effects of public expenditures. Budgets, the collection and management of funds, and the place of the financial administrator in government will also be discussed in this section.

Government control of industry, including the expansion of functions and services performed by national, state, and municipal governments; administrative aspects of labor relations, and the development of the public utility concept, control commissions, and the NRA will be treated in a division under chairmanship of Professor B. Alden Thresher, '20.

Joseph T. Woodruff, '17, chief engineer for New England of the National Resources Board and lecturer in the city planning division of the Institute's architectural school, will direct an analysis of the organization for urban and rural planning and control. This will

comprise town, city, state, and regional planning and zoning; various phases of housing; and facilities for circulation and transportation, water supply, recreation, conservation, schools, fire protection, building codes, and traffic control.

A survey of public health engineering and administration will be conducted by Professor Murray P. Horwood, '16, dealing with problems and procedures of governmental health departments and private agencies in promoting sanitation, control of communicable diseases, and health education.

Organization for social welfare will be discussed in a division under the direction of Professor Edwin S. Burdell, '20, including an examination of public and private agencies for the unemployed, the delinquent, the defective, the handicapped, and the indigent sick. This section will also deal with the development of eleemosynary institutions and the coordination of social services, the community chest movement and the Federal Emergency Relief Administration.

Alumni President to Corporation

FIRST Alumni President to be admitted to the Institute's Corporation as *ex officio* member for the duration of his office is Charles E. Smith, '00, present head of the Association. The change was effected by a recent vote of the Corporation, conferring such membership henceforth on alumni presidents. Alumni and corporators believe this strengthened contact will help solve many problems of an academic and administrative nature.

Prognosticators' Prize

FOR developments in the polar front method of weather forecasting in America, which led directly to its recent adoption by the United States Weather Bureau, Professors Carl G. Rossby and Hurd C. Willett of Technology's Meteorological Division received the Sylvanus Albert Reed award of the Institute of the Aeronautical Sciences at the meeting of that organization in New York on January 30.

The Reed award was established by Dr. S. A. Reed of New York, a pioneer in the development of the duraluminum metal aircraft propeller, and is given annually for a notable contribution to aeronautics.

Professor Rossby and Dr. Willett are the foremost proponents in this country of the polar front or air mass analysis theory of weather prediction, and it was largely as a result of their research at Technology that the method was accepted by the Government's weather experts for daily use on a nation-wide scale. It has been found particularly valuable in forecasting over air routes, where its increased accuracy has already made possible safer and more economical flights.

A native of Sweden, Professor Rossby is a former student of the distinguished Norwegian meteorologist, Professor V. Bjerknes, who, with his son, Jacob, originated and successfully applied the polar front theory in Europe. Professor Rossby served for a time as meteorologist for the Swedish government, and came to this country in 1926 for the purpose of applying the Bjerknes method of forecasting to American weather conditions. He is a former chairman of the Daniel Guggenheim committee on aeronautical meteorology, and for a time was research associate attached to the United States Weather Bureau. He has directed the meteorological course at M.I.T. since 1928.

Professor Willett is a graduate of Princeton University, and has been associated with Professor Rossby since 1929 in the development of Technology's program of weather research. He has been especially active in the synoptic part of the work.

According to the polar front system, the important indications of weather changes are to be found by analysis of the great air masses of the upper atmosphere. These air masses arise in various parts of the world, and differ radically in temperature, moisture content, and direction. Changes in the weather, such as snow, rain, and wind, occur at the boundaries or fronts where these contrasting masses meet. The problem of forecasting thus becomes one of obtaining as complete and accurate knowledge as possible of upper air conditions.

Great areas of cold and warm air, which resemble drawings of vast lakes, some a third the size of the United States, are sketched on the weather maps for the new forecasting. These "lakes" preserve their shapes for considerable periods, from a few days to more than a week. Their "banks" or "shores" are quite sharply held in line by the differences in weight between the cold and the warm air. These lakes of air are reservoirs that feed the "low" areas which mean storms.

The new maps show these great "low" cyclonic whirls are fed from one side by warm air and from the other by cold air. How long this feeding may continue, that is, how long the storm will last, depends partly on the supplies of warm and cold air in the reservoirs.

Sooner or later every storm is surrounded by cold air and cut off from the warm reservoir. The "low" then is unlikely to last much longer. It passes into the well-known threat that is sometimes forecast as a coming storm, but does not appear. By charting the air oceans on the weather maps the forecaster can see when a storm area is about to lose its source.

In order to secure such information concerning upper air conditions over New England, Institute meteorologists have for the past three years carried on daily airplane flights to a height of nearly 20,000 feet. Continuous records of temperature, atmospheric pressure, and humidity are taken by delicate instruments specially designed for the purpose. These studies have been supplemented by investigations of the stratosphere with sounding balloons, and correlated daily with all available information from United States and Canadian Weather Bureau reports, ship and airplane observations, and Army and Navy soundings of the upper air.



Wide World

Hurd C. Willett (left) and Carl G. Rossby (right) of Technology's Meteorological Division receiving the Sylvanus Albert Reed award from Charles Laurence (center) at the recent meeting of the Institute of Aeronautical Sciences. See opposite page

Three types of atmospheric currents have been found to predominate over the United States. There is first the polar continental air, a cold dry mass that originates over the ice of northern Canada. Then there is Gulf air, warm and moist, of tropical origin. The third type, polar Pacific air, is intermediate in characteristics, starting over the Arctic but in crossing the Pacific picking up some moisture and warmth.

By mapping the characteristics and boundaries of these air masses, Professors Rossby and Willett have succeeded in developing the most accurate system of weather forecasting thus far known in America.

Time Out

A STUDENT health record believed to be unequalled by any other educational institution of the Institute's size in the country was reported by Medical Director George W. Morse at a recent meeting of the Alumni Council.

Last year saw only five cases of contagious disease among the 4,000 students, faculty members, and employees for whose health the Department of Hygiene is responsible. Time lost through illness averaged less than two days per student for the year. The departmental records, based on annual physical examinations, show that students almost invariably leave the Institute weighing more and in better general health than when they entered.

Much of the success of Technology's health program is ascribed to the constant emphasis on prevention and to the absence of any administrative red tape which might tend to slow up medical treatment. A precautionary measure which has been found most effective in controlling contagion is that which requires all students absent for medical reasons to report to the department before returning to classes.

Vacations bring more illness to Technology students than they encounter during their entire school year, Dr. Morse declared. His records show that undergraduates lose more time from illnesses, contagious diseases, and accidents while they are away from the Institute than during their school work.

In his study of student health records over a period of 15 years, Dr. Morse has found that approximately one out of every four boys at the age of 18 has one or more physical defects which should have been corrected in preparatory school. Many boys come to college frankly expecting the medical department to correct various defects which should have had attention years before. Dr. Morse emphasized that the problem of the boy who comes to college physically unfit to undertake four years of study is one which must be solved in the preparatory school years.

The natural confidence of youth, which seldom takes into account the value of good health in the years after college, is held responsible for many of the problems of maintaining the health of a large student group. Few boys of college age are found to have an adequate knowledge of proper diet.

"I maintain," Dr. Morse said, "that it is fully as important to train the body as it is to train the mind, and that the college should require a certain standard of physical health as well as a high standard of intellectual ability. I believe that every boy who receives a degree should go out from college in as good physical condition as modern medicine can make him. He should be able to start life's work with the confidence that comes to one who is free of those defects which can be corrected if given attention at the proper time."



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Edward L. Moreland, '07, sole nominee for the 1935-1936 Presidency of the Alumni Association. C. Adrian Sawyer, Jr., '02, is the nominee for the vacant Vice-Presidency. As announced on page 226, the Association President, upon assuming office, becomes a member ex officio of the Corporation. Mr. Moreland is a member of the Boston firm of Jackson and Moreland, consulting electrical engineers. Mr. Sawyer is President of The Sawyer Construction Co., Boston

Current Physics

INVESTIGATORS in diverse fields of physics met at the Institute on February 2 to report recent findings before members of the New England section of the American Physical Society.

The visitors heard Professor Francis Bitter of the Institute's Department of Mining and Metallurgy discuss the "Relationship Between the Elastic and Magnetic Properties of Metals," a subject of much current interest. Professor G. Gamow of George Washington University spoke on "Problems of Beta-disintegration," a method of great importance to physicists.

Among the members of the Institute staff who contributed papers were Professor Robley D. Evans, Harry M. Krutter, '32, and Professor Wayne B. Nottingham in collaboration with Ralph P. Johnson and Maurice E. Bell. Other treatises were presented by Professor S. R. Williams of Amherst College, and Professors P. W. Bridgman, E. C. Kemble, and O. K. Rice of Harvard.

Roving Professors

LEAVES of absence for advanced study and foreign travel during the coming academic year have been granted to Professor Clair E. Turner, '17, of the Department of Biology and Public Health, and Professor Philip Franklin of the Mathematics Department.

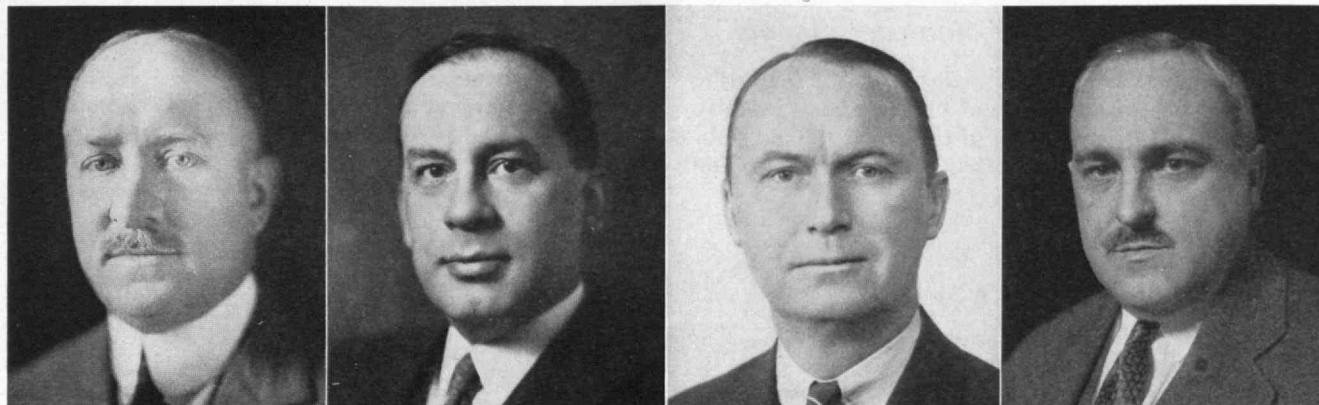
Professor Franklin will go next autumn to the Institute for Advanced Study in Princeton, N. J., where he has been invited to carry on special studies in the school of mathematics. He will concentrate in the application of topology to analysis.

Professor Turner has been chosen as a representative of the World Federation of Education Associations to make a personal study of health education and administration methods in the principal countries of Europe, Asia Minor, Africa, the Antipodes, and the Far East. As traveling spokesman for the Federation, which includes the National Education Association of the United States and corresponding organizations in other countries, Dr. Turner hopes to stimulate health education among the member societies and to strengthen coöperative efforts between educational groups and other agencies interested in school health.

Through arrangements now being made by Professor Charles E. Locke, '96, Secretary of the Alumni Association, Dr. Turner will visit a number of foreign alumni groups, as well as many of his former students who are now active in health education abroad.

In China his stay will be planned largely by Selskar M. Gunn, '04, a member of the Institute staff from 1910 to 1919, and now Vice-President of the Rockefeller Foundation in charge of that organization's activities in the Far East. He also expects to visit Marshall C. Balfour, '19, the Foundation's representative in Greece, and among others, C. C. Chen, '23, in China; John Calvert, '32, in England; Chaim Swirsky, '33, in Palestine; A. Cheskis, '34, in Russia; U. J. Bhatt, '32, in India; and Prasob Sukhum, '23, in Siam.

In the course of his trip Dr. Turner will attend the meeting of the Federation to be held next August at Oxford, England, where as chairman of the health sec-



Underwood

Blank & Stoller

THE ALUMNI PRESENT —

As nominees to the Technology Corporation (left to right): Charles E. Smith, '00, Vice-President of the New Haven Railroad and now President of the Alumni Association; Rufus E. Zimmerman, '11, Vice-President, U. S. Steel Corporation; Arthur C. Dorrance, '14, President, Campbell Soup Company; and Hovey T. Freeman, '16, President and Treasurer of the Manufacturers Mutual Fire Insurance Company and Associated Companies. These names will go by mail to every Institute alumnus for his ratification. They were selected after extended consideration by the new National Nominating Committee

tion he will preside at conferences of that group. He has also been invited to lecture in Paris, at the University of Tokyo, the University of the Philippines, and in China.

Cement Under Scrutiny

IT CAME as something of a surprise to hear recently that no one really knows much about cement — chemically and physically speaking, that is. Despite the fact that adhesive clays and cements have been in use ever since man abandoned trees in favor of caves and mud houses, no one yet knows exactly what happens when modern cement crystallizes.

Given a year or so, however, Institute engineers probably will be able to tell us. Under a grant of \$1,000 made by the National Research Council to the Department of Chemical Engineering, Dr. Levi S. Brown, '33, will undertake a microscopic study of the gel structures in cement, in an effort to discover the precise chemistry and physics involved in the gelation process.

The Sedgwick Lecture

PROFESSOR J. B. S. HALDANE, the well-known British geneticist and author, delivered the 12th annual William Thompson Sedgwick memorial lecture at the Institute on January 25. He discussed "Some Problems of Mathematical Biology," a subject in which he has done brilliant research.

As Professor of genetics at the University of London and head of genetical research at the John Innes Horticultural Institution, he has made outstanding contributions in the fields of physiological chemistry, the mathematical study of natural selection, and the chemistry of flower pigments in relation to color inheritance in plants.

The Sedgwick memorial lectureship was established in 1922 in commemoration of the services of Professor Sedgwick to the cause of biology and public health, and is delivered each year by a man of eminence in the field. The lectures are held under the auspices of the Department of Biology at the Institute, which Professor Sedgwick originated.

The committee in charge includes Dean of Science Samuel C. Prescott, '94; Professor Clair E. Turner, '17; Professor Emeritus Edwin O. Jordan, '88, of the University of Chicago; Professor Gary N. Calkins, '90, Columbia University; Professor C.-E. A. Winslow, '98, Yale Medical School; and Professor Wade H. Frost, Johns Hopkins School of Public Health.

Alumni Nominees

THE National Nominating Committee, functioning for the first time, is presenting to the alumni body this month a list of nominees to Association offices and to the Corporation, which inspires confidence in this new electoral system.

The slate selected by them is as follows: *President*, Edward L. Moreland, '07; *Vice-President*, C. Adrian Sawyer, Jr., '02; *Executive Committee*, Charles R. Boggs, '05, and Professor Carle R. Hayward, '04; *Representatives at Large*, Professor T. H. Taft, '01, Francis C. Holmes, '91, Donald F. Carpenter, '22, Paul E. Chalfoux, '02, and Professor Joseph Daniels, '05; *Corporation*, Charles E. Smith, '00, Arthur C. Dorrance, '14, and Rufus E. Zimmerman, '11, and (to fill the unexpired term of the late Dr. Rowe, '01) Hovey T. Freeman, '16.

Since three members of the National Nominating Committee (Harvey M. Mansfield, '83, Harold O. Bosworth, '02, and Horace W. McCurdy, '22) retire this year as representatives, respectively, of Districts 8, 9, and 10, nominations have been made to fill the vacancies. There are three nominations for each district and the alumni body will select one out of the three to represent each of the districts. These nominees are: *District 8*: Charles A. Smith, '99, Atlanta, Ga.; Prescott V. Kelly, '13, Birmingham, Ala.; F. O. Adams, '07, Tampa, Fla. *District 9*: Albert E. Wiggin, '07, Great Falls, Mont.; Walter H. Trask, Jr., '06, Salt Lake City, Utah; Phillip E. Morrill, '14, St. Louis, Mo. *District 10*: R. A. Folsom, San Francisco; William H. Crowell, '05, Portland, Ore.; W. Scott Matheson, '99, Seattle, Wash.

Corporation Visiting Committee Report

BELOW is a condensation of the Visiting Committee report on the Department of Chemistry recently presented to the Corporation of the Institute and published here as part of a series now appearing in *The Review*.

REPORT OF THE VISITING COMMITTEE OF THE DEPARTMENT OF CHEMISTRY *

AS DISTINGUISHED generally from the engineering departments and particularly from the Department of Chemical Engineering, the Department of Chemistry is devoted primarily to pure chemistry and in that capacity functions first as an undergraduate service department offering teaching courses in chemistry designed to meet the needs of all other departments in the Institute. To increase the effectiveness of this undergraduate instruction, Professor Keyes has organized the Undergraduate Committee, headed by Professor L. F. Hamilton, '14, and this committee is now engaged in correlating and consolidating courses, studying the content of laboratory courses, and delegating a direct responsibility for laboratory work to one man from each division, whose duty it is to develop this phase of instruction. Whereas it has long been generally customary in educational institutions to subordinate laboratory work to lecture courses, Professor Keyes is endeavoring to utilize more directly and powerfully the specific educational possibilities of the laboratory work itself. The second function of the Department is to provide facilities for and to direct the research activities of the large number of graduate students enrolled in the Department — to the number last year of 61. Course V has, in fact, more graduates than undergraduates.

This supremely important phase of the work of the Department is carried on in three divisions as follows: the Research Laboratory of Physical Chemistry under the direction of Professor Keyes, the Research Laboratory of Organic Chemistry directed by Professor Norris, and the Research Laboratory of Inorganic Chemistry in charge of Professor Schumb.

There is a general feeling throughout the Department, which is shared by the Visiting Committee, that the Institute is seriously handicapped in its effort to secure graduate students of the highest grade by its inability to provide a measure of financial assistance comparable to that offered . . . by a number of other institutions of the first rank.

In many cases, moreover, the limited financial resources of the Department place serious restriction on the type of problems which can be taken up by graduate students, which necessitates their assignment to problems of lesser importance than should be the case. . . .

The consideration of sources of income for equipment in the future is of pressing importance, and the immediate situation would be relieved if the unexpended balance of general or other department funds at the end of a fiscal year could be allowed to accumulate to the

account of the department as a fund for the purchase of the more expensive pieces of apparatus or for large-scale research projects.

The Department generally is in serious need of more money to operate its laboratories and to purchase equipment, and if the quality of its personnel is to be prevented from deterioration, it would seem to be essential that professorial salaries be brought more nearly in line with those of the universities with which the Institute must compete for additions to its teaching staff.

In addition to the large amount of fundamental research conducted in the Laboratories of Physical and Organic Chemistry, it is gratifying to note that research work is progressing actively along many significant lines in the Research Laboratory of Inorganic Chemistry under the direction of Professor Schumb. The work in Professor Schumb's department would be facilitated if duplicate copies of the chemical journals and all important standard works could go directly to his laboratory.

This report has endeavored to cover the needs of the Department rather than to emphasize, as it might well do, the efficiency with which its work is carried on and the high quality of its research.

At intervals over a long period, the attention of the Corporation has been directed by successive Visiting Committees to the pressing need of a Cryogenic Laboratory and the exceptional prestige and opportunity which such a laboratory for fundamental low-temperature research would bring to the Institute. The need and the opportunity are both so great that the Committee need not apologize for the repetition involved in again urging the situation upon your attention. The many research problems of fundamental importance which can only be carried out in such a laboratory have a common objective; namely, the determination of the forces surrounding and the forces between atoms and molecules in gases, liquids, and solids. Such research is one of the most important links in the progressive perfection of our correlative physical theories and in the extension of our knowledge of the properties of matter. For example, no problem in chemistry is more important than the accurate knowledge of heat capacities and the extension of their measurement to the lowest temperatures that can be produced.

The results obtainable through low-temperature research are not only vitally important in their theoretical bearing upon chemistry and physics and even biology, but they are essential to further industrial progress along many immediately promising lines.

The most famous cryogenic laboratory is the one established by Professor Onnes at Leiden and in active operation since about 1890. Until after the War this was the only important center for cryogenic research, when facilities were rapidly developed at the Reichsanstalt in Charlottenberg. Within the last few years, fairly complete facilities have been developed at the University of California. Certain investigations at low temperature have been carried out at the Institute in the Research Laboratory of Physical Chemistry, beginning about 1916, but these were interrupted by the War. Low-temperature work has, however, at no time actually ceased at the Institute, owing (*Concluded on page 232*)

* The Visiting Committee which made the above report consisted of: Arthur D. Little, '75, Chairman, Frank W. Lovejoy, '94, Willis F. Harrington, '05, M. H. Eisenhart, '07, William F. Barrett.



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THE INSTITUTE GAZETTE

(Concluded from page 230)

to the generosity of the Air Reduction Company in furnishing a limited amount of liquid air for our use, but it is both difficult and trying to conduct such research where liquid-air supplies are uncertain and limited in quantity. In 1932 the Reichsanstalt used 12,000 liters of liquid air and 1,322 liters of liquid hydrogen, whereas at the Institute, the Physics Department in 1932 used 1,250 liters of liquid air and the Chemistry Department 754, the amount in both instances being only a small fraction of that which could be used to great advantage by these departments. . . .

Sketches have recently been made covering the layout of what is believed to be an ideal and adequate laboratory. Upper and lower limits of provisional estimates of cost place this between 50¢ and 75¢ per cubic foot. The difference between these depends largely on whether the laboratory is bare or is conveniently serviced. Taking the upper figure, the cost of a five-story building, 65 feet by 75 feet, is estimated at \$200,000 and the special equipment at \$50,000. The cost of operation should be a little under \$15,000 a year.

The Committee believes that there is no place in the world with a better background of experience in pressure, temperature, and volume measurement and control than at the Institute. The work has been carried on along these lines for 20 years, some of it being co-operatively supported by the U. S. Bureau of Mines and the American Society of Mechanical Engineers. Professor Keyes, the Head of the Department of Chemistry, is a world authority on refrigeration and has advised in the laying out of both governmental and industrial gas-liquefying plants. . . .

The fundamentally important bearing which low-temperature research has upon chemical, physical, and electrical theories and their industrial application, and the service which the laboratory can render in the less obvious fields of organic chemistry, metallography, and biology justify the hope that means may be found for establishing at the Institute a low-temperature laboratory upon a basis which would assure its position as the center for cryogenic research in America. . . .

GOVERNMENT AND TECHNOLOGY

(Continued from page 223)

his best in setting forth the structure of government and pointing out the technical contacts which it involves. The earlier chapters on such subjects as Political Boundaries and Jurisdictions, Separation of Powers, and on the Legislative, Judicial, and Executive Processes are well done. The book as a whole is vivid and pictorial, so as to stir the interest of newcomers to the subject. The weakness of this approach is most apparent in the chapters whose subject matter involves economic problems, where analysis is necessary to penetrate the surface. The chapter on Management of Government Expenditures is admirable as a sketch of the administrative machinery of budgeting, purchasing, and subsidies, but the more fundamental problems of the direction and extent of government expenditure are not tackled. In the chapters on Revenue, Debts and Currency, Regulation of Public Utilities, and Nation Planning, the same problem arises in more acute form, since here the author has elected to touch on some very large economic issues, while the brief space available scarcely permits of their adequate treatment.

These observations, however, are not so much a criticism of the book under review as an indication that neither technology nor government can move more than a step without encountering economic issues. If this book, dealing primarily with government, leaves many economic problems untouched, it is equally true that economic writers have frequently written as if government scarcely existed. In the present posture of affairs, it is apparent that neither economics nor political science can proceed very far without help from the other. Never before, in recent times, has governmental policy exerted more profound influence upon economic relationships. The study of economic life is to a larger extent than ever a study of political forces and of governmental policies and institutions. Yet for this very reason, political science must be drawn increasingly into economic analysis if its conclusions are to be other than superficial.

Mr. Beard's picture of engineering rationality, set off in contrast to the quagmires of rancorous political dispute which gets nowhere, is, therefore, from one point of view, oversimplified. Rationality operates with reference to an objective given in advance. Once you specify what you want done, it is the job of the engineer to do it in the most economical way. But in between this extreme and that of political dispute lies the whole vast area of economics, in which there is not one objective, but many conflicting ones. Different people have different wants, and each person wants many things. The means to satisfy all wants and to reach all objectives are scarce and inadequate. It is the adjustment of scarce means, having alternative uses, to the satisfaction of numerous and conflicting wants, which constitutes the subject matter of economics. Engineering rationality forms a part of this process of adjustment; economic rationality is more complex because its objectives are diverse. One of Mr. Beard's leading themes is the positive and inevitable way in which technical necessity has shaped social organization to (Concluded on page 234)

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The Institute publishes a variety of bulletins, as well as a catalogue of general information essential to the entering student. The Technology Review Bureau will be glad to send, gratis and post free upon request, one or more copies of any publication listed below, or to forward any special inquiry to the proper authority.

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GOVERNMENT AND TECHNOLOGY

(Concluded from page 232)

its own requirements. This happy outcome is most often found in restricted fields such as sanitation, flood prevention, or traffic control, where the engineering logic of the situation is clearly controlling. In the larger areas of national planning and national policy, the pull of conflicting objectives is much greater, the pattern of forces more complex. The logic of technical necessity gives way to the logic of economic choices. Relationships of costs and prices serve as quasi-automatic adjusting media which enforce some sort of coöperation upon scattered elements so numerous and complex as to remain for the present beyond the reach of conscious planning.

All this, however, is not so much specific criticism as an implication that Mr. Beard should have written two books instead of one. He has performed with considerable success the task he set out upon, which was to sketch in a realistic way the contacts of technical men with government policy. It is, as he himself points out, a task far beyond the scope of a single volume. The book as it stands forms a unique addition to the teaching literature of political science, and it is to be hoped that it will stimulate further studies of the relationship of government and technology.

EXPERIMENT IN DAYTON

(Continued from page 221)

There was a realization on the part of the founders and leaders that there are definite limitations to the technique of community discussion. The town meeting type of government may take care of regulating conduct, religion, and morals, but it is the least efficient mechanism for getting action on streets to be built, wells to be dug, houses to be built, and fields to be cultivated. Unit managers were to have control, and superintendents under them were to see to it that the intelligent and needed thing was done at the right time. In the meantime, an effort was being made to keep up the interest of the original homesteaders who were not now housed on the land by bi-weekly meetings and discussions of housing and agricultural problems that will have to be faced.

Eight families were living on the first unit in June, 1934. Two were in their permanent homes. Each family head built most of his own house. One is of frame construction and the other of cinder blocks with cement wash inside and out. Flagg, the New York architect, has adapted for one of these homes his interesting fireplace, the distinguishing feature of which is a brass or copper hood or face from the top of the fire box nearly to the ceiling. The smoke warms this metal which in turn warms the air as well as radiates heat. The "mud house" idea had to be abandoned as the constituents of the soil on that particular unit were not such as to lend itself to the *pisé-de-terre* construction.

While much of the success of the homesteading project depends upon getting things done, roads made possible, homes built, garden crops harvested, there still remains a large sociological problem to be faced and

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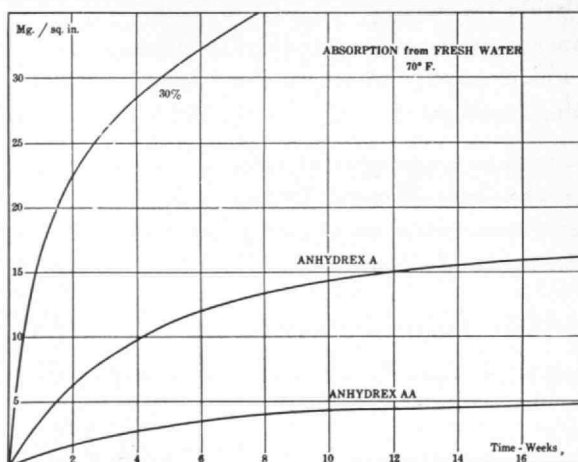


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solved. The fundamental social process of accommodation or adjustment must take place relatively soon if 35 families of heterogeneous backgrounds and interests are to live together side by side and work out their common destinies. There is a cementing influence lacking in this venture that was present in the many Utopian experiments in communal living in the Nineteenth Century. Religious and economic particularism, bizarre folkways and mores, all tended to unify and solidify those idealists through a certain period of organization and operation. In the subsistence homestead we find no soul-stirring urge to collectivism; we find only escape from a topsy-turvy industrial system, and an attempt to find security in terms of adequate yet very cheap shelter and food. It remains to be seen whether these first 35 families weather the storm of organization and federalization. No one has any reason at this time to say with any certainty that the demands of their limited collectivism may not be too much for persons conditioned to complete freedom of choice. The social processes will work with increased activity but no one can predict that compromise, understanding, and adjustment will predominate over conflict, distrust, and obstinacy. Furthermore, suppose it does work for 35 families or even for 50 times 35 families, have we reason to believe that in such a sampling we have solved the urban problem of a predominately urban culture?

Much amusement has been caused by the publicity relating to the innovation of the use of goats instead of the more familiar milk animal, the cow. There seems to be some fairly valid agricultural as well as social reasons why the goat is preferred. A cow is an efficient milk producing unit, but cannot be maintained on crops less than those which can be produced on 10 acres of ground. This is too much land for one person or family to attend. Four goats, on the other hand, can be successfully fed on the forage and crops of less than three acres with some common pasturage. The continuity of family milk supply may be assured by arranging to have two goats fresh at a time, whereas when one cow goes dry, the family is without milk. The obvious suggestion that a herd of cows might be owned collectively and a supply of milk for the 35 families thereby assured introduces the element of divided responsibility.

It was the theory of the developers of this first unit that while collective action may be counted upon to build the houses and prepare the ground for the first crop, after that the more independence and self-reliance that each family develops will be all to the good. In other words, the aim was and should be to develop a "rugged" individualism and not a "predatory" individualism. Those who have cast their lot in the first unit evidently believe that there is something to be gained by creative work, that while a certain amount of drudgery cannot be eliminated, still, in the business of earning a living and maintaining a home, it is possible to introduce new interests and new satisfactions by doing themselves some of the tasks and producing instead of depending altogether on the cash nexus to provide all the necessities of life. A sense of security, mental calm, and economic adjustment is thus much more probable for the worker of the future who may expect, at most, 20 to 30 hours (*Concluded on page 236*)

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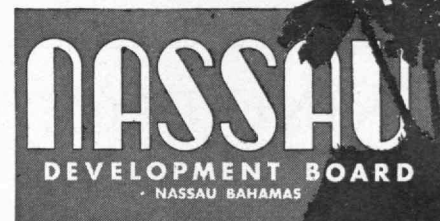
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EXPERIMENT IN DAYTON

(Concluded from page 235)

of employment. The balance of the waking hours may be profitably and enjoyably employed in producing garden truck, in fruit culture, and in the care of chickens and the goats. It should make for courage on the part of the worker. But how much courage? That is the question. Will this new sense of security give the necessary backbone to the industrial worker to hold out for adequate wages and decent working conditions? Will this semi-independence from the weekly payroll create an attitude on the part of the worker that he will work if and when he feels like it? Will this decentralization of the worker's existence decrease the possibility of his being exploited?

Despite these disturbing possibilities, the hidden challenge of the production unit and subsistence homestead is an infinitely more formidable threat to the

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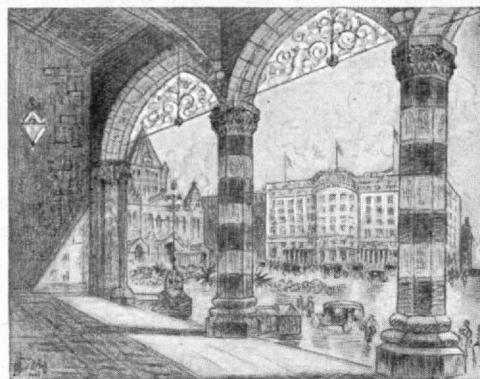
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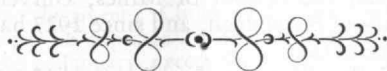
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CHECK-LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

In the News

¶ ARTHUR D. LITTLE '85, on his retirement as President of Arthur D. Little, Inc., chemists and engineers, and his election as Chairman of the Board. EARL P. STEVENSON '19, was elected President; RAYMOND S. STEVENS '17 continues as Vice-President. HENRY A. MORSS '93 was elected to the Board of Directors, of which HORACE FORD, Treasurer of the Institute, is also a member. Dr. Little's staff includes 11 M.I.T. graduates.

¶ WILLIS R. WHITNEY '90, on being awarded the Edison Medal for 1934, by the American Institute of Electrical Engineers, "for his contributions to electrical science, his pioneer inventions, and his inspiring leadership in research."

¶ KILLEY E. TERRY, JR. '06, on becoming President of the National Association of Pulp and Paper Mill Superintendents.

¶ JOSE M. CADENAS '13, on becoming President of Habana University, Cuba, in December.

¶ DONALD W. DOUGLAS '14, on being elected President of the Institute of the Aeronautical Sciences.

¶ PROFESSOR CARL G. ROSSBY and Dr. H. C. WILLETT, staff, were honored for their application of the new polar-front weather theory to American aviation and weather forecasting. (See front section for account.)

Musical Invention

¶ Captain RICHARD H. RANGER '11 has announced a new musical invention, a device by which it is possible to train groups in part singing. Heretofore, choir masters have had to train each group separately and then blend the groups into a singing whole. With Captain Ranger's new device, groups may be trained both separately and simultaneously. The basis of his invention is the process by which the movies learned to talk, says the New York Sun. A sound film is made of the part-music, which is run through a machine in which light tubes pick out and separate the notes of each of the parts. These in turn are transmitted through radio loud speakers to guide the soprano, alto, tenor, and bass parts in separate rooms. A microphone connecting with all the rooms enables Captain

Ranger to direct the entire assembly without leaving the broadcast room.

Written

¶ By ELMER A. HOLBROOK '04, a paper delivered at a meeting of the Coal Mining Institute of America on "The Coal Industry and the Government's Hydroelectric Plants." Dean Holbrook was for some years with the U. S. Bureau of Mines and Assistant Director from 1920 to 1922. He resigned from Government service to head the School of Mines, University of Pittsburgh, and since 1927 has been Dean.

¶ By WALTER V. ROHLFSS '12, a paper entitled "Der Erdölbergbau in Vergangenheit und Zukunft."

¶ By TENNEY L. DAVIS '13, an article, "Primitive Science, the Background of Early Chemistry and Alchemy," in the *Journal of Chemical Education*, January, 1935.

DEATHS

*See class notes for account.

¶ HAL B. FULLERTON '79, in January. Says the New York Journal: "As special agent of the Long Island Railroad and later as manager of its experimental farm at Medford, it was his job to prove that the island was a wondrous place to live and make money. The public may recall him chiefly as the man who arranged the famous race between Mile-a-Minute Murphy, the cyclist, and a Long Island train. . . . Mr. Fullerton grew bamboo on Long Island; he raised tea and cotton there. It was said, until he took over the experimental farm, that you couldn't raise tobacco within 30 miles of the sea. He raised it on Long Island, less than two miles from Great South Bay. . . . He began his business career in a New England cotton mill. He took turns at the exporting business, industrial construction in Mexico, South America, and the West Indies. Finally, he found himself in the railroad business and in 1896 he joined the L. I. Railroad as special agent."

¶ GREENLEAF R. TUCKER '87, January 8.

¶ NORMAN G. NIMS '90, January 20.

¶ CHARLES E. BUCHHOLZ '93, December 17, 1934.

¶ CHARLES R. KNAPP '94, December 18, 1934.

¶ JOHN A. ROGERS '94, June 2, 1934.

¶ THOMAS A. WATSON '94,* December 14, 1934.

¶ FREDERICK F. SCHALLER '96, January 20.

¶ GEORGE L. HOSMER '97, January 10.

¶ GEORGE E. FISHER '98, February 5, 1934.

¶ EUGENE D. MITKIEWICZ '99, June 20, 1934.

¶ JOHN F. MORRIS '01, October 9, 1934.

¶ EDWIN C. REEDER '02, August 23, 1934.

¶ ANDREW E. RITCHIE '02, head of a nautical instrument manufacturing firm in Boston, January 24.

¶ GALEN M. HARRIS '03, March 17, 1934.

¶ HUMPHREY M. HALEY '04,* January 4.

¶ MARY RUGGLES ANDREWS '06 (Mrs. William C.), November 1, 1934. Mrs. Andrews at the time of her death was a chemist in the Research Laboratory of the General Electric Company, Schenectady, joining the staff in 1906. She was married to William C. Andrews in 1908 and, after his death, resumed chemical work at the Rockefeller Institute for Medical Research in New York City. In 1918 she returned to the research laboratory of the General Electric Company and pursued studies in the field of high-vacuum technique, including "clean-up" phenomena in gases at low pressures, and investigations on the formation of tungsten carbide.

¶ ROBERT H. BOOTH '06, no date reported.

¶ RALPH L. BEALES '10, September 26, 1934.

¶ HARRY F. FERGUSON '12, January 16.

¶ PERCY C. HENRY '12, no date reported.

¶ MAYNARD GRIFFITH '14, January 13.

¶ WILLIAM H. GABELER '15, no date reported.

¶ PAUL F. NICHOLS '17, November 4, 1934.

¶ FELIX R. DOWSLEY '18, July 1, 1934.

¶ HARRY M. BOARDMAN '26,* January 18.

¶ CARL F. THEISEN '26,* January 13.

¶ WILLIS C. LUCE '29, January 15.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Notice No. 2 to New Jersey Alumni

Progress is being made in the formation of the new club to accommodate the 900 or so alumni in the Northern New Jersey district. Alumni interested in this new club can get in touch with either J. F. Maguire '17, Congoleum Company, Kearney, N. J., or W. I. McNeill '17, Colgate-Palmolive-Peet Company, 105 Hudson Street, Jersey City, N. J. Members of the Steering Committee are: E. W. Vilette '22, H. J. Horne '22, W. J. Grady '22, C. A. Clarke '21, J. F. Maguire '17, and W. I. McNeill '17. K. J. Lutz '23 is Membership Committee Chairman, working with Mr. Horne of the Steering Committee.

President Compton has signified a willingness to be present at the organization meeting in March and probably others from the Institute may be there also.

Technology Club of Panama

After limping around with the aid of an ancestral cane for several days using lead and opium — the old football lotion — to reduce pain, x-ray plates disclosed that a previously diagnosed sprained ankle, was in reality a fractured fibula; so for the next four or five weeks I shall have to navigate on crutches, with one leg dangling in a plaster cast. A round rock turned on me when it shouldn't have — no, I didn't jump out of a window. Though a bit tiresome, it is not at all painful and the experience is quite interesting, though not recommended, generally speaking. Not long ago I found Malcolm S. Stevens '34 astraddle a narrow ditch overseeing sweating black West Indians with picks and shovels digging a sewer line to some proposed houses in the Gorgas (formerly Ancon) hospital area. As I came up I heard him say: "All right there, Big Boy, now check your depth." A big, black, shiny, dull-eyed laborer clumsily measured the depth of the shallow trench below a certain gauge line. And I thought how interesting it would be if we could all of us "check our depth" as easily! Wouldn't it show how shallow most of us really are?

When you have seen trouble and discontent practically everywhere, and when you have heard, on all sides, growling and complaints about work, living, play, practically everything, it is a pleasure to find one who is really content. There are others of course, but Malcolm tells me that he likes his work, his boss, the division he's in, and that he wouldn't trade places with anyone. Well, it really took an army to separate Malcolm from

his job; certain reserve corps officers have been called for their regular two or three weeks' training, and Malcolm's name was on the list. A local paper, on December 6, stated: "The following named reserve officers, having consented in writing to assignment to a unit of the Regular Army garrison in the Panama Canal Department, are assigned to the following organizations: . . . to 11th Engineers, Post of Corozal: . . . Malcolm S. Stevens, 2nd Lieutenant Engineer Reserves. . . ."

George Cyrus Bunker '05, like Daniel Boone and other famous American pioneers, occasionally returns to civilization. He has gone to New York City, the Hotel Seville, and has registered at the Engineer's Club; when last heard from he expected to be there until the end of January, except for a short visit to his sister's home in Littleton, N. H. His specialty is the design and construction of water works, water supply, purification and filtration plants anywhere in the world, but especially for tropical towns and cities. He has done a lot of that sort of thing. The last time I saw him he had been in Cartagena, Barranquilla, Bogotá, Cali, Buenaventura, and other places in Colombia. His local address is Box 5035, Ancon, Canal Zone, and he has one of the most attractive homes in Panama City, a beautiful native-stone hut, with lots of rooms, tile floors, tile roof, high ceilings, garages, balconies, gardens, with all the tropical trimmings, palm trees and all, fit for a swell movie set, the kind you read about but don't often see. George has been in the tropics so long that I cannot guarantee what he will do in the States, especially when he gets on his woolen underwear, and starts the rounds of the night clubs in New York — by heck!

And speaking of '05 men, we have also another famous water-works pioneer in that same class, and one who came to the tropics with George Bunker. His name is William H. Beers, in charge of the Aguacilar Filtration plant, near Gatun, Canal Zone, and here's the latest about him from a local paper dated December 9: "The duplicate tournament held Friday night in the Cristobal Restaurant by the Cristobal-Colón Contract Bridge Club drew a large number of players. North and South winners were William H. Beers. . . ."

In the December number of *The Review*, there is an interesting letter in the class notes for '15, written by Ed Waldron, Supervising Principal of Union County Schools in New Jersey. Mr. Waldron states that he has had his "present job since 1927, with 125 teachers and 4,000 pupils," is hoping to "live long enough to see the public resold on education as an essential factor in life," and "should like to come to

M.I.T." to do some "personnel direction work and some actual guidance work with the student body," and that many of his friends have told him that they feel "as if they lacked education, that they were simply mechanics when they graduated." May I suggest that if Mr. Waldron and his "mechanic" friends were really to analyze their education, the lack of which they complain about, they might find that their trouble comes, not so much from the courses they took at M.I.T., as from the work or the lack of work they did in the various grade schools and the various high schools they attended; and it appears to me that Mr. Waldron has a much better chance to do real work in personnel direction, student guidance, and education, right where he is in Union County, N. J., than in any line of work at M.I.T. College work is, after all, a continuation of a man's education, a bit more specialized, of course, but with its real fundamental base laid in previous training, at home and at school; and the college student is greatly handicapped if he has a poor foundation.

From a leaflet, "Condensed Information," issued by the Panama Canal, we read: "Madden Dam. — To supplement the water supply of Gatun Lake a reservoir is to be formed by building a dam across the Chagres River at Alhajuela, above the level of Gatun Lake. . . ." Some M.I.T. men who are working on this project include: Major W. E. R. Covell '23, Austin W. Brooks '11, John E. Deignan '26, E. L. Koperski '30, and I. F. McIlhenny '23. — MEADE BOLTON '16, *President*, Box 23, Balboa Heights, Canal Zone.

Worcester County Alumni Association of M.I.T.

The annual dinner of the association was held December 11 at the Sterling Inn and was attended by about 75 members. Professor Walter G. Whitman '17, Head of the Chemistry Department of M.I.T. and formerly director of research for the Standard Oil Company of Indiana, spoke on "Petroleum Products and Development." — Leicester Hamilton '14, Professor of analytical chemistry and chairman of the dormitory committee, spoke on his experience of 20 years of teaching. — J. R. Killian, Jr. '26, Treasurer of the M.I.T. Alumni Association and editor of *The Technology Review*, spoke on alumni activities. — Russell B. Lowe '02, *President* of the club, presided at the business meeting and introduced the speakers.

The executive committee, of which Howard R. Stewart '17 is chairman, had charge of the program. He was assisted by Charles E. Allen, Robert Brown '22,

and Harry M. Latham '93. — JOHN A. SWIFT '27, *Secretary*, 55 Fales Street, Worcester, Mass.

Technology Club of Rochester

The Club was most fortunate in having President Compton as its guest during the afternoon and evening of Monday, December 3. After spending several hours visiting with prominent men at the University of Rochester, and the industrial plants of the city, he was taken to the University Club for dinner. There, one of the largest groups of Technology Alumni ever gathered together in Rochester greeted our President. Several members of the staff of the University and a number of the high school principals of the city also attended.

In the absence of Donald B. Webster '16, President of the Club, who was unavoidably detained in California, Hazen C. Pratt '22, first Vice-President, welcomed Dr. Compton and introduced Frank W. Lovejoy '94, President of the Eastman Kodak Company, who in turn introduced our guest of honor. The other men at the speakers' table were: President Rush Rhees of the University of Rochester, Dr. C. E. Kenneth Mees and Albert F. Sulzer '01, Vice-Presidents of the Eastman Kodak Company, M. Herbert Eisenhart '07, General Manager of Bausch and Lomb Optical Company, and John F. Ancona '03, Consulting Engineer and Honorary Alumni Secretary.

President Compton chose as his subject "The Outlook for Scientific and Technical Work in the United States." He pointed out that with improving business conditions and competition from foreign lands industry will need more technically trained men to develop better methods. He spoke briefly of the financial condition of the Institute, the research activities now being conducted, and the new Alumni reunion plan.

At the suggestion of Phil Kron '34, the Executive Committee arranged a luncheon on Saturday, December 29, for the undergraduates of Technology who were in Rochester during the Christmas holidays. Twelve undergraduates and 22 alumni attended. The holiday spirit prevailed and the members of the two groups soon joined together for discussion of mutual interests at Technology. Several informal talks were given which welcomed the undergraduate group, explained the activities of the Alumni Club, and even offered jobs. The meeting proved such a success in broadening the contacts between the two groups that the proposition of making this meeting an annual affair will be seriously considered. — RICHARD M. WILSON '30, *Secretary*, Building 29, Kodak Park, Rochester, N. Y.

M.I.T. Club of Western Pennsylvania

The Club was greatly honored at its dinner meeting of December 26, 1934, by having as guests several notables from the Institute. President Karl T. Compton

was the guest speaker, and Deans Samuel C. Prescott '94 and Vannevar Bush '16 also gave enlightening talks. The Club President, John T. Nichols '22, was toastmaster, which position he filled with his customary distinction. Those present agreed with him in his gratification over the "anteroom" method of arranging for speeches by Dean Prescott and Dean Bush, who were not officially on the program. Other Bostonians present were Professor Ralph D. Bennett, Electrical Engineering, Professor John W. Bunker, Biology, Professor Henry B. Phillips, Mathematics, Professor A. L. Townsend '13, Mechanical Engineering, and Professor Norbert Wiener, Mathematics. Local academic talent to balance this situation was present in the persons of Professor E. A. Holbrook '04, Dean of Engineering and Mines, University of Pittsburgh, Professor F. L. Bishop '98, University of Pittsburgh, and Professor Harold L. Lang '09, Carnegie Institute of Technology. Any residual unbalance was automatically corrected by the excellent punch served before the dinner. Each member and guest introduced himself to the speakers by name, class, course, and present occupation, a frequent custom in this organization.

Dean Prescott described recent changes in methods of teaching science at the Institute, particularly the parts played by President Stratton and President Compton, the increasing emphasis on small group seminar work in the later school years, the critical review of courses by a student-faculty committee, and the functioning of a tutoring system for freshmen who make low grades in their first five weeks.

Dean Bush described the research in engineering carried on at the Institute. He started to enumerate the 408 separate problems being studied. The audience must have looked like the current newspaper descriptions of the Lindbergh murder jury when statistics were offered in evidence, for he went into details on only two of the projects. The first was the study of the effect of earthquakes on steel structures. The main problem here is the operation of a shaking table which will duplicate earth movements in the effects on a small model structure. This problem was solved by the use of a hydraulic method, the movement of the structure being corrected by a photo-electric cell. The second project was the devising of machines for mechanical analysis of mathematical functions, some of which have been described in *The Review*. The plan at present is to abandon electrical methods as the basis of these analyzers, as such methods do not appear to be capable of development for more than ten equations, whereas solutions for 50 equations are desired.

President Compton, in keeping with the charming personality we learned to know in 1930 and 1931, gave us his version of the present status of the Institute. He mentioned particularly the change in entrance requirements, in which students in the upper scholarship brackets in accredited high schools are admitted with-

out entrance examination. His brief experience with such students has shown that they have better grades at M.I.T. than the average entrant. He also told of the added effort being made to place graduates in suitable positions, even to coaching them in their approach to prospective employers, and orienting them in applying for work where the chances are likely to be good; for example among friends made during their vacations in their home towns, and so on. Dr. Compton also outlined some of the surprising figures on the small amount of unemployment among recent graduates of the Institute. In addition he gave a summary of the present phases of the public relations of the Institute, such as coöperation with the State of Massachusetts in traffic studies.

The 52 members and guests indulged in active discussion of the speeches. This meeting closed 1934 with the most fitting climax possible. The presence of distinguished guests was due to the Pittsburgh meeting of the American Association for the Advancement of Science. We hope that they can be with us again before long, with or without scientific meetings. — E. J. CASSELMAN '15, *Assistant Secretary*, Mellon Institute, Pittsburgh, Pa.

M.I.T. Association of Buffalo

The first meeting of the club was held at the University Club on October 17, 1934. The meeting was devoted to the election of officers for 1935 and to general business. The officers elected were the following: Whitworth Ferguson '22, President, Richard Dow '01, Vice-President, Myrle M. Perkins '31, Secretary-Treasurer. Members present gave Clate Grover '22, retiring President, a standing vote of thanks for his valuable and unflinching interest in the affairs of the club during the past 10 years. We all regret that business takes Clate out of our ranks.

The second meeting, held on December 4, 1934, was attended by 41 members, ranging from the Class of '93 through the Class of '34. The meeting was addressed by Dr. Alexander Schwartzman of Spencer-Kellogg and Sons. Dr. Schwartzman's topic was "Dictatorships." By means of personal experiences in travel through Germany and Russia, the speaker showed that the essential element of any dictatorship is the suspension of the ordinary liberties and rights of the masses. — MYRLE M. PERKINS '31, *Secretary*, National Aniline and Chemical Company, Abbott Road, Buffalo, N. Y.

CLASS NOTES

1884

On November 14 Morse was presented with a diploma and Legion of Honor pin at his home in Brookline, in commemoration of having been a member of the American Society of Mining Engineers for 50 years. He was graduated from Harvard in 1881, and from M.I.T. three years later. For 20 years he was connected with

1884 Continued

the American Smelting Refining Company at various western smelting plants, after which he went to Australia as manager for the Sulphide Corporation, Ltd.

Colonel A. F. Townsend, chairman of the board of Raybestos-Manhattan, Inc., and chairman of the board of the Rubber Manufacturers Association, Inc., has been appointed as the American representative on the advisory panel of the International Rubber Regulating Committee. Colonel Townsend sailed for Europe, October 12, to attend a meeting of the committee in London on October 30. He is regarded as one of the leading rubber manufacturers of the country and well qualified by experience to represent the American rubber manufacturing industry in the experiment to stabilize the supply of its principal raw material. — A. H. GILL, Secretary, Room 4-053, M.I.T., Cambridge, Mass. S. S. DEARBORN, Assistant Secretary, 4 Newport Road, Cambridge, Mass.

1888

The following telegram was read by the toastmaster at the banquet given in honor of Headmaster Fred R. Nichols, at the Union League Club, Chicago, January 29: "Greetings from Boston Technology '88 to our long-distance touring champion." The banquet was tendered by a large number of the Chicago friends and former students of Fred Nichols on his retirement after over 40 years active service in the Chicago school system. Aside from his accomplishments as a teacher of physics and a writer of text books on that subject, his principal achievement was a year's tour with Mrs. Nichols in their Willys-Knight, covering over 6,000 miles from Chicago to Florida, Texas, California, British Columbia, Montana, and back to Chicago. His original plan included Canada, Nova Scotia, and New England but a tie-up in Montana prevented this. During this trip he sent monthly letters to his students with copies to your Secretary which were published, in part, in these notes. We hope nothing will prevent Fred's attendance at our grand 50th anniversary in 1938.

The following appeared in the society news of the Boston Transcript recently: "Mr. and Mrs. Charles A. Stone of Fifth Avenue and Locust Valley, Long Island, announce the engagement of their daughter, Miss Janet Stone, to Edward C. Brewster, son of Mr. and Mrs. George S. Brewster of Park Avenue. Miss Stone was graduated from Miss Chapin's School and made her debut in 1929. She is a member of the Junior League. Her father is chairman of the board of Stone and Webster, Inc. Mr. Brewster attended St. Paul's School in Concord, N. H., and was graduated from Yale in the Class of 1932, where he was a member of the Chi Psi fraternity, Scroll and Key Society, and the university crew. He is associated with the New York Trust Company and is a member of the Yale Club."

A letter from our classmate, Billy Linzee, to Ben Buttolph, in care of the Secretary, contains the following: "Tech

graduates have generally made a grave mistake in playing lone hands. True, there is a certain pride in fighting the battles of life alone, but we have lost power and opportunity by not coöperating in larger groups so that the combined knowledge of any one group could more efficiently handle any development coming before it. In fact, a group might think out developments not possible to one-track specialists." An editorial in the Boston Traveler recently covered exactly the same idea, thus showing that Billy is still up-to-date in spite of the fact that he was graduated from Technology nearly 46 years ago.

Henry Bates is a "gentleman farmer" in Carlisle, Mass. In a recent letter in reply to one from your Secretary he states: "I have 85 acres to look after and then help my son with his 75 acres. I wish I didn't have the burden of keeping 27 acres of woodland in condition, 10 acres of cranberry bog, and about 600 apple and peach trees. The 'alphabetical' New Deal division cut down a lot of old apple trees, probably harboring the apple maggot, so that with a nominal cost for a gasoline saw I will have enough fireplace wood to last the rest of my life. Then, Mrs. Bates has about 500 hens and is now getting about 30 dozen eggs a day. It's a funny thing: when we lived in West Medford and my younger son, who was running Charlie Stone's poultry farm in Plymouth and had about 100 birds on the side at home, enlisted in the Marines, his mother had to take care of his home flock. Up to that time she would climb a tree if a hen walked toward her. Not so long ago, she found one of her hens crop bound. She took her into the kitchen, put her on her lap, performed a major operation with kitchen knife, household scissors, and needle and thread, and I guess the hen is alive and laying. Now the family has to wait for breakfast until the hens have been taken care of. Not she was out at six o'clock this morning, with the thermometer at five degrees, giving her hens warm drinking water and hot, wet mash. Farming is a great life 'if you don't weaken.' I take only three or four days a week at the office in Boston, but the family does raise h— about my sartorial appearance at the farm. I suppose they expect me to wear white-flannel trousers and look like a golfer, but when you have to crawl on hands and knees in the dirt, that isn't the rig to wear. I wish I could have shown Webster my rock-terrace wall this summer. With all of his expert gardeners, he couldn't have produced anything handsomer." Bates, like some of the rest of us, gets a great kick out of the "back-to-the-soil" idea, but some of us dig it with a niblick instead of a hoe.

George Hamblet, of Lawrence, sent out Christmas cards with a fine photo of his 50-foot power boat, *Recruit*, on Lake Winnepesaukee. She has a signal mast, long cruising cabin, tender hoisted to davits, and everything, judging from the photo. We certainly will try to accept his invitation to "come up and see me sometime" next summer.

Another of '88 "honor" men has passed beyond. Edward C. Holten was in the front rank of his profession in the entire world and will be missed by his many friends in the class. His life story is best told in the following, from *Paint, Oil and Chemical Review*, December 13, 1934: "E. C. Holten, world-famous paint technologist and chief chemist of the Sherwin-Williams Company, passed away on November 30, after a brief illness and operation performed on November 28.

"Mr. Holten was born in Winchester, Mass. He was graduated with the degree of B.S. from the M.I.T. before it was moved from Boston to Cambridge. He taught chemistry at M.I.T. for nearly four years until he entered the employ of the Sherwin-Williams Company, as their first chemist on March 1, 1892. He was employed by H. A. Sherwin, founder of the company.

"President G. A. Martin of the Sherwin-Williams Company pays tribute to 'Professor' Holten: 'In my opinion nobody has contributed as much to the science of paint making, both directly and indirectly, as E. C. Holten, and the entire paint industry, which will continue in the discoveries which he made available to us, suffers a great loss in the passing of this noble character.'

"In 1896 Mr. Holten installed and operated the first Sherwin-Williams dry color plant. In 1897 he assisted in the installation of and superintended the first S.-W. varnish plant.

"From June, 1896, to December, 1898, Mr. Holten was a trooper in troop A of the Cleveland National Guard and served as one of President McKinley's escorts during his first inauguration in Washington. In 1898, during the entire period of the Spanish American War, Mr. Holten was sergeant in 'C' troop, 1st Ohio Volunteer Cavalry, and served in southern camps.

"The period from 1894 to 1914 was one of great expansion for Sherwin-Williams and many new products were first developed by him in the laboratory. In 1899 Mr. Holten became the chief chemist of the greatly enlarged technical division of the company.

"Mr. Holten had lived in Olmsted Falls, Ohio, for the past 30 years and served for several terms on the village council, the board of education, and the board of appeals for the village planning commission. He was also a member of the board of trustees of the Congregational Church. During the World War Mr. Holten served as an adviser to the War Industries Board. Mr. Holten was a charter member of the Cleveland Chemical Society (now absorbed in the American Chemical Society) and held various offices of the society including the presidency. He also held offices of local chairman and councilor of the A.C.S. Mr. Holten also held memberships in the American Association for the Advancement of Science, American Society for Testing Materials, American Institute of Chemical Engineers, London Society of Chemical Industry, and the Olmsted Grange.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1888 Continued

"The 'President's Prize' of the Sherwin-Williams Company was awarded to him in 1916 for outstanding research work and developments on insecticides, on which he had numerous patents, as well as on fungicides, pigments, paint oils, varnish resins, and so on, which have been granted to him and assigned to Sherwin-Williams. Mr. Holton has written many articles regarding paints, varnishes, insecticides, and other technical subjects.

"He married Lydia M. Bultman, daughter of F. H. Bultman, inventor, and had two sons, three daughters, four grandsons, and two granddaughters.

"Henry Hain, Vice-President of Sherwin-Williams in charge of auxiliaries and a lifetime friend of Mr. Holton, has thrown some interesting sidelights upon his life and personality: 'Fundamentally a scientist, Mr. Holton fulfilled his obligations and lived graciously, caring little for money or fame. He was a nature lover, and together we tramped the open countryside around the present site of Shaker Heights. Mr. Holton bought a farm and preferred natural beauty to that of the artificially landscaped variety. His farming activities, though a hobby, undoubtedly offered him a practical and interesting laboratory for the study of insecticides.

"A Lincolnian type of man, his imagination, creative insight, and human understanding were outstanding. His wide sympathies gave him secure anchorage against the demands of his professional and social ties. His interests were comprehensive in scope. He was a living encyclopedia — mathematics, botany, chemistry, and physics were all within his grasp. He built up the Sherwin-Williams library — he was the Sherwin-Williams library. If anyone had a question, 'Ask Mr. Holton' was the answer. In the early days he was the company doctor and surgeon, bathing and caring for wounds and ills. His laboratory was the company's dispensary.

"Mr. Holton was usually serious, but never narrow-minded, appreciating the fact that fun was a natural part of life. He enjoyed seeing other people enjoying themselves. Always liberal and unselfish, he was widely known for his wonderful character; absolutely reliable, he would never overstate. To be correct and sure, he would rather understate.

"In short, Mr. E. C. Holton was one of Life's Noblemen, a wonderful example of a life well lived and graciously consummated.'" — BERTRAND R. T. COLLINS, *Secretary*, 52 Garden Street, Cambridge, Mass.

1890

In *Power*, January, 1935, we find the following: "Willis R. Whitney, Vice-President in charge of research, General Electric Company, has been awarded the Edison Medal for 1934, 'for his contributions to electrical science, his pioneer inventions, and his inspiring leadership in research.' The Edison Medal was founded by associates and friends of Thomas A. Edison, and is awarded annually by a

committee of 24 members of the American Institute of Electrical Engineers. The medal was presented during the winter convention of the A.I.E.E. in New York, January 22-25.

"Dr. Whitney's most notable achievement was the creation and development of the Research Laboratory of the General Electric Company of Schenectady. This laboratory, one of the earliest of its kind in the country, is today perhaps the best-known industrial research laboratory in the world. Among its thousands of contributions to technical progress are the tungsten lamp, the gas-filled pump, new insulations and molded compounds, 'Calorizing,' 'sheath wire,' improved photo-electro cells, the Coolidge x-ray tube, atomic hydrogen welding, assistance in the development of high-power turbines, and the mercury boiler, a method of reclaiming crank-case oil. In addition, there have been innumerable contributions in the field of pure science.

"Dr. Whitney is past-President of the American Chemical Society and the American Electrochemical Society. He is a member, or honorary member, of numerous scientific and engineering societies."

We regret to report the death of our classmate, Norman G. Nims, New York architect, who passed away January 20, at his home, 9 Livingston Street, Yonkers, N. Y. He was 67 years old. He was formerly a member of the firm of McKim, Mead and White, but at the time of his death was a member of York and Sawyer. He helped design the Department of Commerce Building in Washington, and the Salmon Towers and the Transportation Building in New York. His widow, a daughter, Miss Elinor Nims, and a brother, Walter Nims of Keene, survive.

The following paragraphs from the *Boston Herald* will be of interest to classmates: "Establishment of the post of under-Secretary of Interior has been recommended to President Roosevelt by Secretary Ickes, who favors Colonel Henry M. Waite, former deputy PWA administrator, for the position, it was revealed today [December 15].

"It was reported that Colonel Waite would be 'lent to the public works administration' and this was taken here as an indication that the Interior Secretary expected the President to agree to a large appropriation for further public works, and in particular to the expenditure of a considerable sum for publicly financed low cost housing."

Word has reached us that Mr. Waite's address has been changed to 1014 Race Street, Cincinnati, Ohio. — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1892

The situation of the Class Secretary, John W. Hall, continues as it was, with his aged sister requiring all his spare time. Twenty-one letters were sent out to members of the class and six replies have been received to date. Charles A. Beal writes from 117 Park Street, Montclair, N. J., as follows: "In regard to my

own affairs, practically all of my business life has been spent with the General Electric Company in connection with its incandescent lamp industry. My experience has been most interesting, especially in that for many years my work has taken me abroad frequently, and I have had the opportunity of visiting many foreign lands not as a casual visitor, but as one who has had a vital interest in meeting and associating with our neighbor 'across the sea.' I have now retired from active business life and as travel has always been one of my chief hobbies, I hope to indulge it more or less as time goes on."

Charles H. Chase, Professor of Mechanical Engineering, Tufts College, is active in the affairs of his home town, Stoneham, Mass. He was chairman of the public library trustees, and of the building committee (1930-1931), having in charge the reconstruction and enlargement of the library building made possible by a bequest of \$100,000. Harry J. Carlson and his son, John, of Coolidge and Carlson, with their staff of engineers, were responsible for the design and completion of the job, which will bear inspection in every detail and is a continuous source of satisfaction to the citizens. Chase was chairman of the Republican town committee during the last two presidential campaigns; also chairman of the Boston Section, A.S.M.E., for the year 1928-1929. Regarding the continuous-type needle loom, he writes as follows: "About nine years ago I was called to the mill by a woolen concern to see what could be done with an imperfect type of needling device for inserting carded wool directly into a base fabric for making cloth without spinning or weaving the wool. It involved devising an entirely new machine on which a patent was granted to me and which is assigned to the woolen corporation. The openwork base fabric, which may be of wool, cotton, silk, or other material, is carried along at three yards or so a minute by a traveling frame, or tenter, and the carded wool is fed on to this base directly from the finisher carding machine in a layer, or lap, 60 inches or 72 inches wide, and of varying thickness depending on the weight per yard wanted in the finished goods. The base fabric carrying the wool passes over a slotted foot and under the descending needles of the needling machine which, catching the wool in their barbs, insert it into the openings in the base fabric and leave it there on being withdrawn on the up-stroke.

"A large number of needles are used, held in interchangeable needle holders carried by reciprocating needle bars arranged to give a continuous needling effect, and so arranged that while in the fabric the needles move along with it. Two layers of wool are normally inserted on one side, and one layer on the other side, of the base. The needles are located and held in position quite accurately. In a part of the cam-actuated mechanism the tolerance of the roller in the cam slot is four ten-thousandths of an inch. A battery of three units, each consisting of a

1892 Continued

breaker card, a finisher card, and a tenter, with the needling machine, is about 175 feet long, and in a continuous process produces the rough needled fabric ready for fulling and finishing in another department of the mill.

"The first product of the machine was a line of blankets of different weights followed by coatings, cloak and reefer goods, and, more recently, paper-makers' felts. Last year one order was filled for 40,000 blankets for a federal relief association at a very low figure. A large per cent of re-worked wool can be used in this process. Tests of some of the fabrics have been made at the textile laboratory of M.I.T. and some samples have been left with Professor Haven for his collection of woollen goods. The leading article in the *Textile World* of May 25, 1929, was devoted to this process. It may be interesting to note that the first needling machine, built in 1926, has been in operation ever since that time, more recently with a later construction of needle bars. These are some of the things I have been doing while carrying on a full program of regular college work though I had a half year's leave of absence in 1930, in order to do some special design applied to textile machinery."

Billy Kales has called attention to Allen French's new book, "The First Year of the Revolution," which Kales has been reading with the greatest of interest, and thinks it the most complete and carefully prepared work every written on the subject. It should make French famous as an historian. Among French's other activities, Chase reports that he is chairman of the Concord, Mass., library trustees, having recently spent a large amount in reconstruction and addition to their library buildings.

The following cryptic lines were received from Sargent: "There is very little for me to say, I go the even tenor of my way, surveying this and measuring that, staking out lots and drawing maps, it seemed I never would get through with all the work there was to do until quite lately, as you know, the signal flashed before us, 'slow,' so now I sit and ponder when the cycle will return again."

Billy Kales writes as follows: "My partner, James T. Whitehead, with whom I started the structural steel business of Whitehead and Kales Company, in 1899, died four years ago. In settling up his affairs, the structural steel business came to me and I am back again in active charge. As you may well imagine, this responsibility keeps me here in Detroit and prevents the wandering around that I had been doing since the War. Mrs. Kales and I, however, are beginning to get restless, and long for another trip to China so that we can again see my youngest brother, who is an architect in Shanghai. We have four children, the three eldest of whom are married. We have four grandchildren, two girls and two boys. Our youngest daughter is in her sophomore year at Vassar."

A letter was received from George H. Goodell's secretary saying: "Mr. Goodell has been too ill since the middle of

November to attend to business. He is recovering slowly but is not able to acknowledge your letter."

There were four men who acknowledged my letters, who were too modest to give us a story. We will, therefore, excuse them for a brief time only. It is thought that the following information regarding what is going on at M.I.T. may be of interest to members of our class, which is at present represented on the Corporation by Harry Carlson and Billy Kales, both life members of that body. Both Park and Johnston appear on the list of Professor Emeriti, the latter being still active, as earlier reported, as Director of the Lowell Institute School. Upon the occasion of the last meeting of the Corporation, January 9, both of our members called on me; Carlson came in the morning and Kales in the afternoon. On the Faculty we are represented by Ross F. Tucker, Professor in charge of the Course in Building Engineering and Construction; C. E. Fuller, Professor of Theoretical and Applied Mechanics, Dean of Army Students, member of Committee on the Graduate School representing Mechanical Engineering; W. S. Hutchinson, Professor in charge of the Department of Mining and Metallurgy, including Ceramics and Electrochemistry, member of the Committee on the Graduate School.

The Acting Secretary speaks for himself briefly as follows: In addition to my work on the staff at M.I.T., I have endeavored to keep in touch with what is going on in mining and, inasmuch as base metal mines are in a bad way and gold mining is a thriving industry, visits were made during the past year to the new gold fields in Canada — Porcupine Area, Kirkland Lake, both in Ontario, and Noranda, Quebec. During the last two summers, visits were made to Cripple Creek and Alma, Colo., the Black Hills, S. D., and the Bridge River District in British Columbia. Everywhere the greatest activity obtains, with many new mines being developed, particularly in Canada, and old mines reopened in the United States. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass. W. SPENCER HUTCHINSON, *Acting Secretary*, Room 8-219, M.I.T., Cambridge, Mass.

1894

The preparation for the publication of the Alumni Register at the Institute always brings to light some news from members of the class who have not been heard from for long periods. Although the occasional class letters go to all men for whom we have addresses, no doubt many do not reach the men for whom they were intended. A few items regarding '94 men have been received in the Alumni Office and these are passed on for the information of the class.

H. E. Johnson, of whom we have not heard for several years, has been located in California, his address being 527 Valley View Avenue, Norco. If perchance this item comes to his attention, I hope he will give us an account of what he has been doing for the past five years. C. H. Deitering is still practicing architecture

in St. Louis, his offices being at 706 Chestnut Street. R. G. Hubby is another Californian; his present address is 6715 Hollywood Boulevard, Hollywood. W. L. Woollett is reported as still practicing architecture with an address at 5330 Locua Linda, Hollywood. With the number of '94 men who are in California, it looks almost as if there ought to be a Los Angeles branch of the class. Charley Meade has not responded to a class letter for ages, but we have learned that his home address is 130 College Avenue, Poughkeepsie, and his business address 5945 Grand Central Terminal, New York City.

It is with great regret that we must report the death of three men who have been associated with the class. Harry B. Russell, who took the short course in architecture in our student days, died on December 15, 1934. Russell spent two years at the Institute, then after working in an architect's office, spent some time at Harvard. He married the daughter of the late Governor Douglas and lived for a number of years at Charles River Village until recently, when he moved to 5 Otis Place in Boston. He maintained an office for some years on Park Street, in Boston, but in recent years had not been in the best of health.

George W. Frank, who was also an architect, has, likewise, passed on. The Secretary does not know the date of his death which occurred at Brooklyn, N. Y. — The death of Thomas A. Watson recently in Florida is also reported. He was listed with the Class of '94 because of certain special studies which he carried on at the Institute largely as a means of gratifying his great interest in science. Many will recall the name, for Thomas A. Watson was associated with Alexander Graham Bell in the earliest experiments on the telephone about the time most of the members of the class were born, and it has been reported that he was one of the two who carried on the first real telephone conversation which was ever held. He was for many years connected with the Bell Telephone Company, later was in the shipbuilding business and was President of the Fore River Ship and Engine Company from 1900 to 1903. He was a man with very broad scientific and engineering interests, as is evidenced by the fact that he pursued courses in geology at the Institute after he had become distinguished for his scientific work in electricity and while engaged in administrative duties in shipbuilding companies. It is a distinction to the class to have his name associated with us.

George Owen recently lectured before the Society of Arts on the subject of "Yachts and Yacht Racing." Each Society of Arts lecture is given three times, on Friday and Saturday (for invited groups of high school students) and on Sunday (for the general public) in the large lecture hall at the Institute. Owen gave a wonderful lecture, illustrated with slides and moving pictures, and at each presentation the hall was packed to the doors. If there had been three more repetitions

1894 Continued

of the lecture he probably would have had equally large and enthusiastic audiences, for he has had a very unusual experience not only as a professor of Naval Architecture but as a designer and sailer of yachts. Those who were present at the reunion will remember with special interest the splendid talk and interesting pictures which he showed at that time.

Ted Varney, who will also be especially remembered by those who were at the reunion, has recently changed his business address, and, in fact, has left the country. He is now located in Montreal where his address is: care of Aluminum Ltd., 1000 Dominion Square Building. For many years Varney has been one of the leading engineers of the Aluminum Company of America and it may be assumed that he is now in an important administrative position in the Canadian subsidiary of this company.

Bill Sayward, who entertained us so royally at the class reunion, has removed from Shelburne Falls to Griswoldville and is still active in Boy Scout work and in his more serious work as a public reader of plays.

Although it is a bit of old news, the Secretary takes pleasure in reporting that some weeks ago he spent a couple of hours with Ray Price. Price and his wife had been for some months at his ranch in California on account of the illness of Mrs. Price's mother and were about to leave for their Paris home. Mrs. Price did so, but as the political activities preceding election became very great, Ray remained in California. Feeling that the election of Sinclair, with his E.P.I.C. program, would have been a catastrophe of the first order, Price devoted his energies day and night to the campaign. Having had very unusual opportunities to study the effects of communistic movements in various parts of the world, he believed that there was a very serious menace to our established government in the Sinclair program, and we may be assured that Price's activities during the campaign were effective and were actuated by the highest and most patriotic of motives. Having had the opportunity to lunch with him and to learn at first hand of the observations which he has made practically all over the world, the Secretary wishes that not only every member of the class but every thinking American could have the opportunity to share his information. He has done a magnificent work and it is devoutly to be wished that it might have widespread publicity.

H. N. Parker, who is the bacteriologist of the Department of Health of Jacksonville, Fla., spent a few weeks in the North, in attendance at one of the meetings of the international associations for the control of milk supplies. The Secretary got a rather fleeting glimpse of him but we had an opportunity to recount the experiences of 40 years ago when we used to tramp across Harvard Bridge before it was open to traffic, and when our combined assets could frequently be expressed in terms of cents rather than dollars.

A telephone conversation with Alan Claflin a few days ago brought out the information that Alan's son, Avery, who in business life is the Treasurer of the French American Banking Corporation of New York, had brought out an opera which received its first production at Hartford a few weeks ago. The title of this opera is "Hester Prynne" and it is based on Hawthorne's great New England classic, "The Scarlet Letter." In this work Avery Claflin has been assisted by his wife who prepared the libretto for the work. Pictures of Mr. and Mrs. Claflin appeared in the rotogravure section of the *Boston Herald* on January 6, and the *Literary Digest* of December, 1934, gave a column to the discussion of this new opera. The class should feel very great pride in this contribution to musical art from the son of one of its members, and I am sure will feel a sense of ownership in it, and will extend its cordial congratulations not only to the composer but also to his father. — SAMUEL C. PRESCOTT, Secretary, Room 10-405, M.I.T., Cambridge, Mass.

1896

As a fellow member of the Nine-Issue Club which contributes class news for every number of *The Review*, your Secretary laments the loss of a notable feature of this publication. Like a great many other readers, his first act on receipt of an issue was to turn to the 1901 class news to see what Allan Rowe had to say, and never was he disappointed. Allan had a gift of choosing subjects and of presenting them in a unique and striking manner that was inimitable. His lexicography was more teeming even than that of a Webster. His diction, whether oral or written, was superb, rivaling that of Shakespeare. His pen was pungent, but never to the point where the editorial censorship had to expunge even a single word.

During the year that Rowe was President of the Alumni Association it was your Secretary's good fortune to be intimately associated with him in the position of Alumni Secretary. It was a year of continuous surprise at the versatility of the man, his wide range of information, his infinite capacity for work, his intense loyalty to Technology and the Alumni, and his genuine frankness. If he did not approve of a policy, he said so openly. If with you, he was a most powerful ally; if against you, he fought to the last ditch, but always on the square. During his presidential year he made a record of visits to local clubs that had never been approached. One learned that he had a wide knowledge of literature and authors, had made a success in amateur theatricals, had done much in philately, and even acquired an expert ability as an amateur magician. In the gastronomic line no one knew better than he how to set forth good meat and drink.

The memory will always linger in the minds of those who were privileged to participate in those rare evenings with Rowe at the St. Botolph Club where life began, not at 8:40, but nearer midnight,

and where the man's superb qualities were fully revealed. A trip with Rowe to visit a local club was a treat and an opportunity to exchange ideas and to learn. The learning, however, was very much one-sided, as your Secretary at the moment can recall only one instance where he was able to make a contribution, and that was a very minor matter of explaining the construction and operation of the double filament bulb in the automobile headlight.

One learned that Rowe was human like the rest of us and had his foibles. Street car travel and moving pictures were strictly out of his life. His soup course must always include crackers. Ices and pastry were taboo for dessert, and crackers and cheese were the only fitting end of a dinner. It was well worth the word or smile of appreciation which the Secretary received when these special features appeared at an alumni meal as a result of the Secretary's arrangement with the steward. A little incident comes to mind which reveals another trait of the man. One day I jocularly asked him why he always wore spats and his quick reply, which at the time seemed to be in equally light vein, was, because they avoided the necessity of lacing his shoes. At a later date when I was in his office and saw him change from his white canvas hospital shoes to his street shoes, I found that the reason he had given was absolutely and literally true. We will all miss the personality of Dr. Rowe in the '01 class news.

Among Christmas cards received from classmates was one from Norman Rutherford reporting that his operation had been a success, although he still feels the effect of it slightly. — Willett A. Wood had his sister write for him that he was still under the care of a doctor and a nurse as the result of his stroke three years ago and he was unable to move very much. — Arthur Baldwin arrived back in Paris after a rough voyage. In fact, Arthur applied a strong adjective in referring to the "rough voyage" but that is deleted here in order that the sensibilities of *The Review* editors may not be affected.

Con Young is getting a good rest this winter in Fort Myers, Fla., after a long siege of neuritis last summer and fall which, however, now seems to be on the mend. He described vividly the killing cold snap in Florida the early part of December and the celebration of Christmas with noise according to the style of the Fourth of July in the North. Fortunately, he and Mrs. Young inherited a nice five-room bungalow this winter which has enclosed front and back porches and enclosed patio sun room in the rear. The owners, who were good friends of the Youngs, were suddenly called North for the winter, and the Youngs moved into a completely furnished domicile. The young singer, Davidoff, who was promoted by Young and his friends at a recital in Fort Myers last March, has landed in grand opera, and was scheduled to do two performances in Cleveland this winter, as well as

1896 Continued

two in the Metropolitan Opera House in New York in a new modern Russian opera, where, Con understands, he has the leading rôle. The southeastern states, with Florida on top, seem to have had a real year of prosperity and there is the greatest swarm of tourists and winter residents since the big years of '27-'28 and '29-'30. The wonderful five-mile long beach off Estero Island, 16 miles west of Fort Myers, at the mouth of the big Caloosahatchee River was swarmed on Christmas Day with sun and ocean bathers, and pier fishermen. Several parties had their Christmas trees and dinners out on the waters of the gulf and the river.

Gene Hultman has landed on his feet again. The incoming Governor Curley of Massachusetts had threatened to oust Gene from his job of Police Commissioner of the City of Boston when his term expired early this year, but outgoing Governor Ely in a last-minute *coup* appointed Gene to the office of Chairman of the Metropolitan District Commission for a long term, which would seem to make him secure, barring unforeseen court action or other political move.

Mr. and Mrs. M. L. Fuller are not letting the grass grow under their feet. During the summer they made a two months' trip to Europe, going first on an English cruise from London to Iceland, Spitzbergen, North Cape, and later touring the continent through Germany, Poland, Czechoslovakia, Austria, Hungary, Yugoslavia, and Bulgaria, and finally returning by way of Venice, Geneva, and Mont Blanc to England, whence they sailed to America on August 31. Their last trek, on which they started from New York on November 20, was planned to include Morocco and Tunis in North Africa, Sicily, Spain, and Portugal.

Jacobs and his wife sailed from New York on January 26 for an *Empress of Britain* cruise around the world, which will include a stay of several weeks in Honolulu, finally arriving back home in Vermont in August. Incidentally, Jacobs has just got off the press the 19th Annual Report of the State Geologist of Vermont, which is "him."

Word has been received of the death of Alonzo B. Conant of our class, who was with us for only one year. He was a brother of our classmate, Alfred D. Conant, I. No details have been secured beyond that of the date of death, which was about January 29, 1932, and it occurred at Long Beach, Calif., as the result of uremia.

Another classmate who has passed on is Lamont Russell Stroud, who was also with us only in his freshman year. He was born November 13, 1872, son of S. S. Stroud of St. Albans, Vt. He practiced civil engineering in St. Albans for a few years, but moved to Ballston Spa, N. Y., when his parents acquired the Medbury Hotel there about 30 years ago. He seems to have been associated with his father in that business, as well as carrying on his profession, as at the time of his death his occupation was given as retired civil

engineer. His demise occurred in Augusta, Ga., on March 11, 1932, where he and Mrs. Stroud were spending the winter at the Partridge Inn. He had been in good health until a few days before his death, when he began to suffer with abdominal pains. A physician was summoned and an operation resulted, but it was too late. The operation showed that the appendix was not only misplaced, but in a very bad condition. He is survived by his widow, formerly Miss Fulmer of Dingmans Ferry, Pa., whom he married in the spring of 1927. The remains were brought North for services at his former residence in Ballston Spa.

A last minute report has been received that F. F. Schaller died in Washington on January 20 and services were held in South Natick on January 24. Further details will be obtained and reported later. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1900

A nice letter from Jouett, the old variety tackle, follows: "I haven't any news to give you, but just to show you I still have a right hand, I will write a line or two. Your notice of a class dinner on the 20th intrigues me, and if by chance I should be in New York at that time I will chase over to Boston. I expect to be able to attend our reunion in 1935 and am looking forward to a good time. I was terribly sorry to miss the 1930 reunion. I haven't any suggestions to make, but hope the arrangements will be such as to induce a goodly number to return. The last few years have been uneventful for me. As you will note from the address, I am still in Cleveland and still with the Cleveland Union Terminals Company though we finished the construction work four years ago. My family is getting older along with myself. My younger daughter entered Western Reserve University this fall.

"I rarely see a classmate — the last one was Charlie Smith who dropped in to see me a few months ago when he was in Cleveland attending a convention. I certainly was glad to see him. I am also glad '00 is represented by him in Alumni matters. I saw today a wonderful game of football, Navy *versus* Notre Dame, the best I have seen in a long time. It was well played and a thriller. I don't go very often as I have no particular interest in any of the colleges here, but when I do go I am greatly impressed with the difference between today's game and that of our time. Best regards to you personally and to those at the dinner."

Tom Perry has been hard at work making new words out of old; a collection of them in the shape of a letter looks like this: "My coming depends somewhat on whether the 'exasperator' on my ancient Flivver is sufficiently 'exhilarated' to negotiate the road by next June. And I would suggest that the week-end for '00 be not too purse flattening nor bank account stretching. The financial modulus of elasticity of all is low — and the

torsion strain terrific. As for myself and wife, we are well and economizing as we never before thought we could. Bretton, the oldest boy, has been graduated from the University of Louisville and has made an interesting connection with the new American Can Company plant at Austin, Ind. T. D., Jr., is a senior at Yale, and Frances, the daughter, sticks to Boston and is now at E. T. Slattery's store. Our factory has been closed for two years, and I am sick and tired of doing nothing and no one. See Frank Rash '01 from time to time. My best to all the fellows at the class dinner."

Worden writes: "As to suggestions in regard to the reunion, I feel that Saturday and Sunday, June 1 and 2, are good dates for the celebration, but as to how or where to celebrate, I feel that a committee close to the field of action and familiar with Boston and its vicinity should arrange those details. Since 1930 I have had a son graduated from Technology, a daughter married, and I am now in the grandfather class. Otherwise, my life has been rather uneventful during that period."

Here is a portion of Chester Richardson's letter: "From 1930 to August, 1934, have been employed by Charles T. Main, Inc., Boston, Mass. My work has been largely the designing of steel and reinforced concrete structures. I worked on the structural design of the Eastman Laboratory and the Spectroscopy Laboratory at M.I.T. Later I worked on the design of the U.S. Parcel Post Building at the South Station, the foundations of which have been recently completed. At present I have a temporary position in the Engineering Department at Lever Brothers Company, Cambridge, Mass."

A letter from Fred Everett follows: "I have been away for 10 days attending a convention of State Highway Officials in New Mexico, and so passed up attending the class dinner, November 20. I was very sorry not to be able to be present as I am interested in the reunion for next June, and shall endeavor to take in any blow-out that the Class may have. While I was away, the Technology Club of New Hampshire saw fit to elect me President. It is too bad to pile up dead wood on a job of this kind, but probably that was the easiest way out of the affair for those present."

We have received word of the death, in 1914, of Charles Calvin Briggs, Jr., Course XIII. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

At a special meeting of the class the following resolutions were voted:

- (1) That in the death of Allan Winter Rowe the class has lost its most active and valued member.
- (2) That the class express their deepest sympathy to his mother and surviving relatives.
- (3) That to the whole class the untimely death of Allan Winter Rowe was a sudden shock and created a sense of deep and saddening loss.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1901 Continued

(4) That he had served the class and all humanity with untiring zeal.

(5) That he was appreciative, genial, approachable, and kind to all his friends and they were many.

(6) That he was an enthusiastic sponsor of athletics at Technology.

(7) That he was internationally known for his biochemical research and work with the glandular functions and medicine loses a distinguished scientific investigator.

(8) That it is a pity that one so gifted with charm, personality, and ability should pass away at a time of his greatest usefulness.

(9) To the members of his class his memory will be held dear and all who knew him will remember him also as a kindly and helpful friend.

(10) That the M.I.T. loses one of its most devoted and helpful Alumni and those who have worked with him had loved him for his sincerity and completely unselfish generosity.

(11) That a copy of these resolutions be sent to Mrs. Arthur S. Rowe, Dr. Rowe's mother, published in the class notes in *The Review*, and spread upon the class records.

Allan's sudden passing away on December 6 was a shock to all of us, as we did not know he was ill until we read in the papers a couple of weeks before his death that he was confined to the Massachusetts General Hospital. We could not send flowers to his funeral, as it was his wish that a funeral be dispensed with. A meeting of the class has been held and the above resolutions drawn up and adopted.

Now that Allan has gone, the question arises who is going to write the class notes? At our meeting the fellows wanted me to tackle the job and I agreed to do it for a while anyway. Having been Secretary of the class for 13 years, prior to Allan's 13, I know what it means to be Secretary. I cannot hope to entertain you with the wit and brilliant writings of your former Secretary but I can record happenings and keep the class records intact. So if you want anything in these columns you must write me of your doings! — ROBERT L. WILLIAMS, *Secretary*, 109 Waban Hill Road North, Chestnut Hill, Mass.

1904

It is always a sad duty to record the passing of a classmate, but particularly so when that classmate is one of our best-beloved and most faithful members. It was a tremendous shock to us all when we learned of the very sudden death on January 4, 1935, of Humphrey Matthew Haley, best known to us as Hump. On that morning he left his office apparently in the best of health, and, following his usual custom, went to the Boston City Club for lunch. On his arrival there and while checking his coat, he was stricken with a fatal heart attack and passed away immediately. Funeral services were held at St. James Church, Salem, on January 7, and were attended by a number of our classmates.

Haley was born in Salem, Mass., on June 10, 1882, son of Humphrey and Bridget Haley, and lived in that city throughout his life. He received his education in the Salem public schools, being graduated from Salem High School in 1900, and in the fall of the same year entering the M.I.T. from which he was graduated with our class. Immediately upon his graduation he entered the employ of Edwin C. Lewis, Inc., an electrical contracting firm in Boston, where he served in various capacities and eventually became superintendent of construction. In April, 1926, he severed his connection with this firm and organized the H. M. Haley Electric Company, which he conducted successfully to the time of his death. Hump was never married and is survived by his sister, Miss Anna E. Haley.

This brief account of Hump's activities fails to convey any adequate idea of his life. He was most reticent with us all about his personal affairs, but he was the most faithful member of the class in all Technology matters. For the past seven years he was the class representative on the Alumni Council, and although we never heard of it from him, we learned that he served with distinction on various committees and was thought by the officers of the Council to be one of its most valued members.

He never missed a class reunion and seldom missed any other alumni activity of which he was aware and which it was at all possible for him to attend. When present at such affairs he had very little to say but his ideas were always constructive and, upon occasion, he presented them with forcefulness. He was always intensely interested in the welfare of his classmates and acquaintances, and was constantly doing favors for them. It was his extreme pleasure that his actions along these lines were always unknown.

After his death there appeared in the *Salem Evening News* an article "In Memoriam," the writer of which so thoroughly understood our classmate that his expression of Hump's qualities could not be improved upon by anyone, and consequently I am using it in these notes: "In the tragically sudden death of the late Humphrey M. Haley, this community has suffered a loss which extends far beyond the confines of his native city, to which he was so uniformly loyal. A Christian in the real sense of the word, he was as liberal as he was devoted. His ideal of duty was exceptionally high, and in his business relations and all his dealings with his fellowmen, he was invariably guided by the finest of principles. An indefatigable worker during his entire life, he prized his well-earned success mainly because of the larger opportunity for service that it gave him. Particularly was he anxious to assist the young men and youths with whom he came in contact, to share with them the philosophy he had cultivated, and the benefits he had acquired in his own successful career; he was greatly loved by them all."

"The old people of his acquaintance also, the friends of his parents and his early days, were close to his heart, and

his generosity was remarkable although, because of his modesty and intense dislike of display, his benefactions can be known to the recipient alone.

"In brief, he was a gentleman, unassuming, kindly, genuine, and his memory shall be, as his life was, a potent influence for good. The sympathy of the community goes out to the large circle of friends who will mourn him long and sincerely, and in particular, to his beloved and devoted sister."

W. P. Schumacher, of El Paso, has been appointed assistant general manager of the Mexican Division of the American Smelting and Refining Company. He will continue to make El Paso his headquarters, where he had been assistant manager of the Mexican Division before his promotion. — Mert Emerson, who for the past year or more has been serving on the Public Works Technical Review Board, has been appointed Regional Director of NRA for the New England states. His headquarters are located in the Chamber of Commerce Building. — E. H. Russell, Jr., was elected class representative on the Alumni Council on January 28 to fill the vacancy caused by the death of Humphrey Haley. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 8 Rosemary Street, Chevy Chase, Md.

1905

The reference in the January notes to the flora of Bermuda stimulated Roy Lovejoy, IX, to the point of writing a long report on "two of the most beautiful gardens in the world. One you have at least heard of is the Magnolia Gardens near Charleston, S. C. The estate has been owned by one family for 250 years and it is in a gorgeous park, with unquestionably the most magnificent specimens of the magnolia tree that can be found anywhere."

"In that garden you will find probably the most magnificent azaleas that can be found anywhere. They are actually trees, some of them being 20 feet to 30 feet high and in all the colors. Amongst the huge live oak trees you will find wisterias that are actually trees in themselves, and of course, blooming as they do amongst the Spanish moss and the shiny green of the live oak, make a picture that is well worth seeing. It is a veritable fairyland of color, and it is in itself best during the months of March and April, so when the cold snows 'get your goat' take that trip and enjoy yourself."

"Another garden, although decidedly new, is probably the next most beautiful spot in the entire South. It is the Bellin-grath Gardens, near Mobile, Ala. These are on the shores of a beautiful bayou or small river and there are thousands of azalea bushes there. The owner has actually transplanted and set out these azaleas which he picked up from adjacent old places. Some of these trees are from 50 to 75 years of age. I call them 'trees' because they really are much more than mere bushes and this garden has been laid out around a beautiful lake."

1905 Continued

"You will find in addition to these azaleas probably the finest assortment of rare shrubs and camellia (the latter I expect is the best collection which you can find anywhere) and, of course, that estate is laid out in a semi-tropical jungle of magnolia, water oaks, cedars, holly, and dogwood. It is natural beauty plus the added attraction of a magnificent landscape garden, so I recommend this place also to you.

"Then there is one other trip that you ought to make if you ever can, down to Natchez, Miss., early in April. During what they call 'Pilgrimage Week' all the old ante-bellum estates and some of the most historical plantations are thrown open to the public. You see the luxury and magnificence of the Old South as Natchez, as you know, dates back to about 1680."

In explanation of his interest and experience, Roy says: "It just happened that last year I took a motor trip through the south. I have been going down there for many years. I have a business in New Orleans and it so happens that Mrs. L. was a New Orleans lady so maybe that is the chief reason why I have such a fondness for the South. It is a good enough reason for me and I think it will meet with your approval. Last year we decided to make a motor trip and it was on that trip, which lasted for quite some time, that I visited all these places and I actually traveled 6,752 miles, according to the speedometer. Of course, it was not entirely pleasure because I tried to do some business along the line, but the pleasure part of it became so attractive that I did not make any money on the trip, but I did get a wealth of pleasure and enjoyment out of it so, as an investment, I consider that it was quite worth while."

"Twenty-three years ago, on July 14, Harry Atwood, II, brought his Burgess-Wright biplane down to a perfect landing on the White House lawn. — He was working on a rocket motor in Massachusetts when last heard from," wrote Wesley Stout in the *Satevepost*.

An appeal to Eliza Newkirk Rogers, IV, and to Eleanor Manning O'Connor, IV, '06, failed to produce any recollection of Katherine Houghton Hepburn, IV, mother of K. H. Mrs. O'Connor kindly researched and reported that Miss Houghton had received an A.B. from Bryn Mawr in 1899, A.M. in 1900, and that she was doing graduate work at Radcliffe in 1900-1901. She writes: "I suspect she may have taken a course in the Architectural Department but not enough to have her make many contacts."

From Clarke Warren, II: "Thirty years! Impossible! Just last week Bill Green hid in the bath tub of George Jones' Technology Chambers suite only to be dragged forth by the arm of Boston Law and served with subpoena for rudely knocking down a poor defenseless flower girl. Warned by Bill, I dodged the same flatfoot who sought to serve the same dose to me. Good old Bill!

"Thirty years! Pshaw — nonsense — These husky devils that call me 'Dad' can't be aught but phantoms. My broth-

ers — not my sons — impossible! They know so much more than I. Just a dream — those 30 years."

From Grafton Perkins, V, one-time Editor-in-Chief of *The Tech* and *Technique*: "I am still on my old job as advertising manager of Lever Brothers Company, Cambridge, and find it as exhilarating as ever in spite of more than ten years spent on the same task. In fact, I should not call it a task, because it is more truly a pleasure, and my only hope is that nothing will interrupt my relations until it is necessary to set me in a nice mahogany coffin with silver handles.

"There have been more changes in my family, however. This is natural, as kids will grow up. Just at present my brood is widely scattered. Grafton Junior graduated last June from the United States Naval Academy and is at the present moment an ensign on the U.S.S. *New York*, stationed on the Pacific Coast. Just now he is at the Navy Yard in Bremerton (opposite Seattle), but later in the year his ship will probably proceed to San Pedro, near Los Angeles, where he can be found by any classmates of mine in that neighborhood who are curious enough to look him over.

"My oldest daughter, Deborah, is spending her junior college year at the Sorbonne in Paris, and as nearly as I can gather from her letters is not letting business interfere with pleasure to any undue degree.

"Robert W., son No. 2, is in Tucson, Ariz., at the Fresno Ranch School for a year, getting an idea of what it is to live 'in the great open spaces where men are men.'

"So this leaves me with only Anne, the youngest, to make life lively at home, but this energetic seven-year-old can carry on most efficiently.

"Coming back to myself, I have found that lots of people wonder what an advertising manager does. Most of them seem to think that I make all the drawings and write all the text to our advertisements. Far be it from so. My job is really a general executive one, plus contributing now and then to the general ideas behind the campaign. The real, creative work is largely in the hands of two associate advertising managers and two agencies, and I have the general job of supervising a department, which, in all its ramifications, embraces more than 100 people."

A few years ago Jack Flynn, II, traveled South America and later the Far East for Blaw-Knox, returning to Pittsburgh in 1931. Now, with "Capt." attached to his name, he seems to be in Rio de Janeiro, care of Armco International Corporation, Ave. Rio Branco 109. From past experience we shall expect another good story.

Bill Mann, III, whose address is Box 650, Eureka, Calif., writes: "I am glad Rubel wasn't buried in a shallow grave in Mexico or left on top of the ground. The last time I saw him, he was 16 days horseback N. W. from the end of the Mexican International Railroad, and after that I went to Honduras, Central America, where there are no railroads in

the country, and then I went and lived among the Aztec Indians in South Mexico and when President Taft ordered Americans to leave Mexico we all thought there would be war between Mexico and America. The Governor of the Aztec State of Oaxaca published broadcast that all Americans would be welcomed to that state and would be protected against the Mexicans — a memory of the Past. I saw John T. Glidden's name mentioned in *Engineering and Mining Journal* recently in an article about some tunnel project in Chile."

Doc Lewis, X, addressed an American Chemical Society symposium in Cambridge on December 29 on the subject of distillation. — From a New York paper it was learned that two freshmen were the winning co-authors of this year's Tech Show. So "The Show" is going on. — Ernest Schmeisser, VI, wrote but said only that he was no longer with the Baltimore Oil Engine Company and that Tom Pinkerton, V, was still in Baltimore but he never saw him.

Ed Burkhardt, XIII, has moved to 76 Clark Road, Brookline. — A Christmas card from Walter Eichler, II, was postmarked "Ludlow, Mass." No romance yet. — Herb Wilcox, X, says that he spent an evening recently with "Tizzy" Hinkley, II. "It was the first time I had seen him in over ten years. Somehow us fellers always seem able to resume just where we left off no matter how long the interval between visits."

From Harry Wentworth, VIII: "Fred Goldthwait, II, has been in lately for a couple of chats looking to the development of irrigation on the golf courses of the state. Occasionally I see Percy Goodale, VI, through the golf activities, as not only is he a good player but his boys are becoming prominent. I am out of the Massachusetts Golf Association after three years as Secretary-Treasurer and for the past two years have been Vice-President of the New England Golf Association.

"My oldest boy, Nathan, who graduated from Dartmouth in 1932, lives in Paris, where he is Assistant to the European Manager of the American and Foreign Insurance Association, the organization through which most of the big fire companies here do their foreign business. In his official capacity he has occasion to make a great many contacts in Europe and travels quite a lot. I am now waiting for a promised letter giving his picture of European conditions and outlook. As he graduated with *magna cum laude* in history, I should rather expect that this would be worth while when it comes — if it ever does.

"My second boy, Vincent, who is a junior at Dartmouth, has been with us during the vacation and, although he is majoring in political science, I could gather no very clear impression of his feelings with regard to the New Deal. I cannot help feeling that the reason for this is the general radicalism of students and his inherent conservatism, which would tend to keep him on the fence until he becomes more sure of himself."

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1905 Continued

The recently published Directory of the Alumni Association exposes a number of active '05 men: Grove Marcy, II, is a member of the Executive Committee, Dan Harrington, X, a Term member of the Corporation, and Frank Chesterman, VI, a member of the National Nominating Committee. Grove Marcy is also a member of the Executive Committee of the Council, Charlie Boggs, V, a Representative at Large, and Sid Strickland, IV, the representative of '05.

On the Council, Bob McLean, II, represents the Technology Club of Bridgeport. On the Departmental Visiting Committees, Ralph Tarbett, XI, looks over Public Health, Clayton Simmers, XIII-A, has Naval Architecture, and Charlie Boggs the Division of Industrial Cooperation.

Ernest Schmeisser, VI, is President of the M.I.T. Association of Baltimore, Phil Darling, II, President of the Technology Club of Bridgeport, and Floyd Narramore, once '05, XIII, President of the Technology Club of Puget Sound.

Among the "Honorary Secretaries of M.I.T.," there are Dan Harrington, X, Delaware; Charlie Johnston, III, Virginia; and Mitch Mackie, VI, Wisconsin. Until his recent move to Milwaukee, Clarence Gage, II, was Honorary Secretary for Indiana.

Stanley T. Hyde, X, died on December 26, 1934, in Bremerton, Wash. He had been employed in the Public Works Department of the Navy Yard at Bremerton for the past 25 years, going there from Watertown Arsenal, where he had been for two years. A pioneer resident of Bremerton, he was an accomplished amateur fisherman and hunter. — *ROSWELL DAVIS, Secretary*, Wesleyan Station, Middletown, Conn. *SIDNEY T. STRICKLAND, Assistant Secretary*, 20 Newbury Street, Boston, Mass.

1907

In the January issue we stated that there were 13 men of the class to whom we had written seeking information who had not replied, and that to several of these we had written second letters. At the time of preparing these notes (January 23) not one of these men has shown us the cooperation or common courtesy of answering these letters in any way. We have also written once to six other men during the past four weeks with the same result — no word. Again we will state that we are not "peevish" but we want to go on record to the effect that the meagre amount of class notes in this issue is not due to lack of effort on the part of the Secretary. It is a bit hard to understand how men presumably possessed of the culture and business experience, which should be characteristic of every '07 man, can fail so completely to show everyday courtesy. If a man does not care to give us information about himself, that is, of course, his privilege, but he can at least write and say so.

In the February Review we spoke of our pleasure at hearing from George Griffin. Since then George and the Secretary have had quite extensive, friendly

correspondence. From 1907 to 1908 he was Assistant Engineer of Water Works at Wrentham, Mass., for the next two years Drainage Engineer with the United States Department of Agriculture, and then for eight years with the New York City Board of Water Supply. From 1919 to 1923 he served the Providence Water Supply Board as assistant designing engineer and then severe illness caused him to go to Woods Hole, Mass., his wife's home, to recuperate. He has stayed there ever since, engaged in private civil engineering practice. He has three children, a daughter 25 years old, a son, Gifford, 19, a freshman at Technology as mentioned last month, and a boy 16.

Our class President, Alexander Macomber, has moved his office to 110 State Street, Boston. The mere recording of addresses is uninteresting reading, but as we know that occasionally men of the class like to correspond with other members, we will give a few new addresses rather recently received: — Albert H. Donnewald, Box 297, Independence, Kan.; Harold C. Libby, 1614 Dilworth Road East, Charlotte, N. C.; Benjamin F. Mills, 100 Medel Street, Manila, P. I.; Dr. Seldon E. Rockwell, 5090 Utica Street, Denver, Colo.; Leverett H. Cutten, 2815 Washington Street, Allentown, Pa.; Captain Harold S. Wilkins, U.S.A., Augusta Arsenal, Augusta, Ga. — *BRYANT NICHOLS, Secretary*, 12 Newland Street, Auburndale, Mass. *HAROLD S. WILKINSON, Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

We have received the following letter from Charles W. Morrison, whose address is in care of Joseph P. Day, 67 Liberty Street, New York City: "I am very sorry to have delayed sending in my check for dues and thereby causing you to mail me several notices. I would not like to lose getting The Technology Review as I consider it one of the very best from the standpoint of material and printing. It is always readable and I notice it is quoted by reviewers of current publications very frequently.

"Of course, I do not get much class news out of it since I was connected with '08. For some reason the crop of men which left the Institute in that year is very reluctant to communicate its whereabouts. The members of this crop practically never tell where they are or what they are doing. It is very mysterious because occasionally I see one of the '08 men on the street and generally he looks prosperous, even since repeal.

"I have a very good memory for faces, especially the faces of the members of '08. One reason for this is that during classes, such as those conducted by Professor Frank A. Laws in Technical Electrical Measurements, I used to look around to see whether there was a glimmer of comprehension on the countenances of my classmates. This served to fix the dazed expressions in my mind so that during the last four years I have readily recognized many fellow classmates.

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"I see them downtown on the street. They never recognize me but I speak to them, and ask them if it is not true that they were members of the Class of 1908. It takes very good nerve these days to speak to a man to whom you are a stranger and sometimes when I approach they say, 'No, brother, I have no dime.' I wish I could meet them at the Alumni dinners we used to have in New York. The other day I met Harold Weeks. He lives only a couple of blocks away from me and I discovered it after nine years' residence on Brooklyn Heights."

Gregory M. Dexter, of Scarsdale, N. Y., whose engagement we recently reported, was married on November 24, 1934, to Miss Katie W. Jaecker. Mr. and Mrs. Dexter will reside at 32 Fenimore Road, Scarsdale, N. Y.

It is with regret that we report the death of Horace S. Sargent, which occurred on November 29, 1934, at his home in Auburndale, Mass., after an illness of less than two weeks. At the time of his death he was associated with the Submarine Signal Company of Boston, and was formerly connected with the Revere Drop Forge Company and the Stanley Steamer Company.

J. W. Maxwell, Assistant General Manager of the Mexican Smelting Department of the American Smelting and Refining Company, has transferred his headquarters from Monterrey to Apartado Postal 38 Bis., Mexico, D. F., Mexico. — *L. E. WEMPLE*, of Chicago, President of the Illinois Zinc Company, visited the Company's subsidiary, the Peru Mining Company, at Deming, N. M. — *HAROLD L. CARTER, Secretary*, 185 Franklin Street, Boston, Mass.

1909

There seems to be a general scarcity of material for class notes this month. I hope that somebody reading this will take pity on the poor Secretary and send in some information about himself, or family, or classmate, which can be used for The Review.

George Wallis, accompanied by Mrs. Wallis, left Chicago, in the middle of January, on a business trip to the Pacific Coast. They are traveling by automobile and George hopes that he may be able to see some of the members of the class en route. — *CHARLES R. MAIN, Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries*: *PAUL M. WISWALL*, MAURICE R. SCHARFF, New York; *GEORGE E. WALLIS*, Chicago.

1910

These notes were written the day of the "Big Blizzard," with your Secretary in bed with the grippe, and Herb Cleverdon doing three men's work at his office because none of his partners could make it through the drifts.

There isn't much point in giving reunion news through The Review because we have started with the mail publicity and anything I write for the notes would be old stuff before it reaches you. The first appeal for funds went out the end of January, and the Secretary

1910 Continued

made an effort to get a bunch together for the Home-Coming Dinner, February 9, in Walker Memorial, so we could discuss plans for June.

The biggest message we have for you now is COME TO THE REUNION IN JUNE! — DUDLEY CLAPP, *Secretary*, 40 Water Street, East Cambridge, Mass.

1911

The following announcement from the Worcester *Telegram* will interest classmates, concerning as it does Hal Robinson's oldest boy: "Mr. and Mrs. William J. Bland of Lawrence announce the engagement of their daughter, Miss Gertrude Bland, to Henry Caldwell Robinson, 2d, son of Mr. and Mrs. Harold L. Robinson of 109 Morningside Road. Miss Bland attended Simmons College and Connecticut College for Women. Mr. Robinson is a senior at Norwich University." All good wishes to the happy couple!

It was nice to learn that A. V. deForest, XIII, who is now on the Institute's professorial staff, was initiated on January 11 into the Technology chapter of the Society of Sigma Xi. More power to you, Alf!

Carl Richmond, I, added another to his proud list of photographic accomplishments with the "family 'round the fireplace" Christmas card he and Mrs. Richmond sent this season.

How about those New Year's resolutions? Haven't had a single letter yet from a classmate with a 1935 date stamp. This can't go on. Obey that impulse! Your Secretary is now at The Bancroft Hotel in Worcester, as Promotion Manager. — ORVILLE B. DENISON, *Secretary*, The Bancroft Hotel, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

Your secretarial department finds that about the only way it can get news of classmates is to go out in the highways and byways and hunt for it. If an unsolicited letter or telephone call should come in, we would feel ready to testify that the days of miracles are upon us again.

While on a week-end trip to Boston, your Assistant Secretary ran across Bill Buckley, I, and we found we still had one thing in common. We both have our red hair, and plenty of it, still growing nicely on top of the skull. Bill is living at 41 Freeman Street, Wollaston, Mass. He is in the sheet-metal contracting business, and like most of the rest of us is hoping business will get better before we get too old to care whether it does or not.

An advertising circular received recently from E. B. Moore, VI, testifies that he is in business at 51 Clark Street, Brooklyn, N. Y. He is handling a line of electric soldering irons, as a distributor for the manufacturer, and is also doing an engineering and consulting business in electrical and mechanical work.

Your Secretary has learned that Art Campbell is the proud father of a nine-weeks-old son, Allen White Campbell. Art was married about a year and a half

ago and is now living in Waban, Mass. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N. Y.

1914

The front cover of the January *Industrial Standardization* depicted casehardened glass being shattered by a steel dart. The picture was but one of a series shown in connection with an article on safety glass. The author? None other than Alfred W. Devine, Assistant Registrar of Motor Vehicles of the Commonwealth of Massachusetts.

Each year Dean Fales makes a visit to the New York Auto Show, then returns to Boston and tells the Boston Section of the Society of Automotive Engineers about his trip. It is never quite settled whether it is his on-the-record or off-the-record knee stories that bring the greatest interest. In any event, Dean did his stuff — as only he can do it — for the Boston Section on January 15.

On January 13 Maynard Griffith died of heart failure after an illness of a year. Griffith was one of the youngest commanders in the service of the Dollar Steamship Lines. As Captain, he had commanded such ships as the *President Lincoln* and the *President Wilson* on their transpacific runs. Although turning from railroad engineering to the sea, he never forsook his research training and became a collector of marine data. Griffith never married; he is survived by his mother, to whom he was particularly devoted and to whom the sympathy of the Class has been expressed.

It is with equally great regret that we record the death on October 15 of Ross Campbell as the result of a short illness. Ross had been at Memphis for 10 years, first with the Procter and Gamble Company and later with a cottonseed oil company, where he was chief chemist and engaged in the manufacture of rayon from cotton linters. Before going to Memphis he had been a chemist for the American Writing Paper Company, at Holyoke, Mass. Ross was one of the group who came to Technology from Newburyport, Mass. To his wife and mother, who survive him, is extended the sympathy of the Class.

To Donald Dixon is extended our sympathy on the loss of both parents, his mother less than a year ago and his father in January.

Through the courtesy of Bob Townend, who discovered the item in one of the technical journals, we learn that C. C. Davis, Assistant Technical Director of the Boston Woven Hose and Rubber Company, of Cambridge, has recently returned from a vacation trip to Italy. We tried to get Davis to give us a little data regarding his visit to Pompeii and other places of interest but unfortunately were unsuccessful. Perhaps we will have this for a later issue.

H. S. Wilkins, Secretary of the Varsity Club, together with Dean Lobdell '17, is endeavoring to raise a subscription to

have painted for Technology a portrait of the late Dr. Allan Winter Rowe '01. Wilkins was associated with Dr. Rowe for many years on the Advisory Council for Athletics.

Ralph E. Merry, after quite a varied experience during the past few years, has established himself again in Somerville, Mass. He is with the Connecticut Mutual Life Insurance Company. Merry confessed to your Secretary that, although he is one of the several classmates who have entered the life insurance business, he had planned to enter this field and had been studying it for a number of years. His actual entry, however, was accelerated by changed business conditions. Ralph reports that he has been doing quite well and is very encouraged as to the real possibilities in this field.

Make your plans now to return to Technology on June 3 for Alumni Day. There will be no five-year All-Technology reunion this year, Alumni Day taking its place. The Class is planning to do its part and is counting on having you there. — H. B. RICHMOND, *Secretary*, 30 State Street, Cambridge, Mass. C. P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

Hear! Hear! This is the clarion call for our Twentieth Reunion. At a class dinner held, January 15, at Walker Memorial these men came to make a record attendance: Reggie Foster, Joe Livermore, Ercell Teeson, Chet Runels, High Hat Rooney, Carl Wood, Henry Sheils, Whit Brown, Louie Young, Frank Herlihy, Lloyd Chellman, Wally Pike, Joe Phelan, Abe Hamburg, Frank Parsons, Johnnie O'Brien, of course, Don Perin (his first appearance), Loring Hayward, Larry Landers, Arch Morrison, Easty Weaver, Weare Howlett, Joe Sindler, Les Heath, Max Woythaler, and the Secretary. An unusual guest was Les Heath's oldest son, a fine, manly-looking chap in high school and on his way to Technology. That's a reminder of the years!

A bit of explanation is necessary to identify High Hat Rooney: none other than the former, well-known George Red Pirate Rooney, who put Course I on a successful basis. George was formerly a regular two-fisted old ball player, and could always be depended upon for an afternoon in the bleachers, but since some one gave him a set of golf clubs, he's gone high hat on us and now can be seen at his country club only by appointment between rounds. In fact, little Andy's letter (dated October 11) best tells to what heights George has raised his hat: "As for news, there isn't much. I finally finished a 28 months' enforced vacation last May and am now with the Port of New York Authority on the construction of the new Midtown Hudson Tunnel. I am located on the New Jersey side at Weehawken, N. J. Back in '15, '16, and '17 there were quite a few of us 'sand-hog' engineers following this tunnel game, but now it seems that Howard King and I are the only ones left. King, as you probably know, is with the Mason-Hangar Company, contractors for this job.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1915 Continued

"I will try my best to be present at the reunion and will be better prepared this time. Boy, how that old gang went back on me at the 15th. I am still about 22 or 23 years old, haven't grown any up or down, sideways or front ways. I expected a real old ball game at that last reunion with George F. Rooney in the box and myself behind the bat, and what did I find! There was George as fat as an alderman; he used to have a little steam on the ball if nothing else; well — he wasn't in the box but out in the field where they put all the old-timers. And Frank Scully, who used to be able to move around second base à la Frisch, where was he? Tied to first base. Well, I guess we will forget ball games and take up some old man's game, but we will have a good time anyway."

A grand dinner ended with the decision to have the reunion a stag affair on Friday, Saturday, and Sunday, May 31, June 1 and 2, at a convenient shore hotel between New London and New Haven. Soon we shall have a New York City dinner to organize the chaps down there. You will shortly receive the opening announcement. Send back the reply card and make your plans to come. Remember our Tenth at Cotuit and our Fifteenth at Marblehead! These committees assure success: General Chairman, Frank Scully; Location, Max Woythaler; Transportation, Joe Livermore; Emergencies, Johnnie O'Brien, of course; Golf, Arch Morrison and High Hat Rooney; Baseball, Frank Parsons; Prizes, Louie Young; Refreshments, Henry Sheils, Joe Sandler, and Weare Howlett; Bromo Seltzer, Abe Hamburg. There's the line-up and the tentative schedule. Everybody come, have a good time, and make this our biggest and best reunion.

Harry Murphy writes from Massachusetts Engineering Company, Inc., North Quincy, Mass.: "Since becoming an engineer through the assistance of the dear old Alma Mater, I have by sobriety and hard labor worked myself up to be a boiler maker, second class. I hope some day to be a first-class boiler maker but probably will never be able to make the grade."

H. W. Anderson in Philadelphia writes as follows: "I am happy to cooperate by sending in my dues. I met Gabe Hilton and several '15 men when Dr. Compton addressed us at the University Club a short time ago. Blackie used to call Course I Anderson Andy No. 1 and myself Andy No. 2."

Charlie Malone says: "I hope to be with you and the gang this time, having missed each previous reunion." And will we all be glad to see Charlie again. Do come! — Thayer MacBride grabs a little advertising, but it's all right. He's entitled to it as one of our best: "Enclosed is my check; it is a pleasure I assure you. As your plans for the coming reunion progress, I should like to know what is 'in the wind' if you don't mind. As you know, I have been in the shoe business ever since leaving Tech and have been with Stetson Shoe for the past eight years. If any '15 men want really fine shoes,

there is no company making any better ones, and you can count on the fingers of one hand those that can even compare. We make three nationally known brands and things generally are going along 'not at all bad.'"

Andy Wardle in Chicago writes: "Whether I get to the reunion depends in large part on the dates."

Charlie Bouchard writes from the office of the Federal Motor Truck Company in Brussels, Belgium: "... There is not much I can tell you about myself except that I have been in the automotive industries since leaving school, except for one year in France during the War when I was attached to the French Air Service. I have been over here now for about seven years for Federal. This is interesting work as I have much traveling to do. I do much of this by car, and had one trip well into Africa as I have some of this continent to cover. I really should like to hit the class reunion next summer, but don't expect to return to the United States until the fall. However, I hope everyone has a good time and that the good cause will be carried on."

From Alton A. Cook, who is with Arkansas Company, Inc., manufacturers of textile chemicals, New York City: "Your letter was forwarded to me from my former address in Wellesley Hills. I am now back in the New York area. My home address is 63 Adams Place, Glen Ridge, N. J. Since leaving Massachusetts, I spent about a year in Cleveland with the Industrial Rayon Corporation and then about a year-and-a-half ago, I came back here to serve as chief chemist for a concern which had been a very good client of mine when I was previously in New York engaged in consultant work."

Arthur L. Nelson in Boston is looking forward to seeing all hands at the coming reunion. — Loring Hall in Detroit is right up front in the race to have the class son first to enter Technology. Watch out, Loring, for the dark horses who are laying back under wraps. "My mind must have been dwelling on the reunion because I wrote 1935 in the above date (October 10, 1934). I really am looking forward to it eagerly and will be there if it is humanly possible. In spite of the defeat of the Tigers, Detroit is in good spirits and moving rapidly toward the production of new models. It is the busiest time of the year for me, with all kinds of fasteners and little gadgets to work out for the engineers. It is fascinating work; each day brings a new batch of problems to be solved. — My family is growing up, Chuck having gone away to Cranbrook this fall to prepare for Tech. He spent a day at the Institute this summer and came home full of enthusiasm about it. We have a Tech alumni club here but there are very few '15 men at the monthly meetings. Could you send me a list of our classmates in or near Detroit? Perhaps I can help you corral their dues by calling them up. I'll be glad to help in any way I can."

The motor-truck industry must boast of several of our men. Here's Jim Franks, coming to life for the first time in years

with the White Motor Company in Philadelphia. There'll be a great welcome awaiting you, Jim. "Enclosed is my check which I gladly send to help a little in connection with our approaching reunion. Unfortunately, I have never been able to attend any of our reunions, but I am going to make a special effort to get back for the Twentieth in order to renew acquaintance with my old friends. . . ."

Louie Young substantiated his letter by being the life of our dinner. I wonder what he'd be like on a week-end? "I have just discovered that I neglected to do my bit in aid of the Class Treasury. I can at least claim the honor of being the last one to come across. Best regards and I can attend a class party any evening or week-end."

And though Louie is last to come across, I want to tell you there is still room for some one else to be last with his dues. Seriously, my thanks to you all. A hundred men have paid \$331 in dues — a remarkable demonstration of class loyalty, spirit, and sincerity, and I appreciate it. — AZEL W. MACK, Secretary, 72 Charles Street, Malden, Mass.

1916

Jeff Gfroerer is more busy than ever with Dodge Brothers Motor Car Company in New York City, but took time to send the following brief note: "Haven't seen any of our classmates so have no news for The Review. Working like — as usual and still able to pay most of the bills. The New York Show was a better selling show for us than the previous year. Am getting rested from this strenuous week."

Review readers have for some time been enjoying news of the Technology Club of Panama which is furnished by Meade Bolton, the Club's President and Honorary Secretary of M.I.T. for the Canal Zone. Professor George E. Russell '06, Boston representative of the Club, reports the receipt of a Christmas card from Bolton, depicting that gentleman sitting amid tropical splendors, clothed in spotless white and surrounded by an assortment of most intriguing glasses — a picture well calculated to stir the dregs of discontent in the glasses of us poor mortals who are striving to keep Old Man Winter outside our red woollens. Russell says that Bolton never misses sending his monthly contribution of news and that due to his energetic efforts, the Club has become a thoroughly live organization. — HENRY B. SHEPARD, Secretary, 269 Highland Street, West Newton, Mass.

1917

A new and marvelous scheme for obtaining class-note material has come to our attention. It seems that speakers before the Northeastern Section of the American Chemical Society customarily have complete biographies published in the Section's magazine, *The Nucleus*. All that seems to be necessary is for us to have members of the class arrange with K. E. Bell, Chairman of the Section, to give a talk and the notes are automatically

1917 Continued

available. Here, for example, is what *The Nucleus* has to say about Barney Dodge: "Professor Barnett F. Dodge, Chairman of the Chemical Engineering Department of Yale University, will be the speaker at the meeting of the Northeastern Section on January 11, 1935. Mr. Dodge was born at Akron, Ohio, on November 29, 1895. His undergraduate work was done at the M.I.T., where he was awarded the S.B. degree in chemical engineering in 1917.

During the next three years he was employed by E. I. duPont de Nemours and Company at the Eastern Laboratory, Gibbstown, N. J. His work was chiefly on the development of processes of loading high explosive shells with amatol. From June to November, 1918, he was stationed with the United States Government shell-loading plant at Penniman, Va., where he acted as adviser in starting operations on shell loading with amatol. After the close of the War in November, 1918, he returned to the Eastern Laboratory to do development work on ammonium nitrate explosives. The next year he was transferred to the main office as an assistant to the Manager of the Inspection and Standards Division of the Chemical Department.

"In 1920, Mr. Dodge became a chemical engineer with the Lewis Recovery Corporation of Boston, Mass. His work was on the design and operation of solvent recovery plants. From 1921 to 1925, Mr. Dodge was a lecturer on chemical engineering at Harvard University. During this time he carried on graduate studies which led to the Sc.D. degree in 1925. His research was on the phase equilibria of oxygen-nitrogen mixtures at low temperatures. In this same period he found time to lecture on chemical engineering at the Worcester Polytechnic Institute.

"After a short interval (February, 1925, to October, 1925), as a chemical engineer with the Fixed Nitrogen Laboratory of the U. S. Department of Agriculture, Dr. Dodge went to Yale University as Assistant Professor of Chemical Engineering. In 1930, he was advanced to the rank of Associate Professor, and in 1931, he was made chairman of the Department of Chemical Engineering of Yale University.

"Professor Dodge's researches include studies on the production of hydrogen, the oxidation of ammonia to nitric acid, the high pressure synthesis of metanol, the effect of pressure on organic chemical equilibria, the solubility of gases in liquids at high pressures, and the factors affecting the rate of absorption as a unit operation of chemical engineering.

"From 1926-1927, Professor Dodge acted as a consultant to the Oxygen Process Corporation of New England on the development of the Jefferies-Norton process of air separation. At the present time he is consultant to the Connecticut State Water Commission on the development of processes for the treatment of pickling wastes."

Necessarily, certain members of the class receive disproportionate numbers of lines in these notes. For a long time H. P. Eddy, Jr., was the worst sufferer, until he

finally registered an official complaint and was to some extent relieved of the irritation. There are others who are kept in the spotlight both through merit and the nature of their activities. Their names must continuously make notes until the millennium when the average alumnus furnishes his average quota of news without solicitation. The present victim is the Honorable Lewis Williams Douglas, and here's what *The News-Week in Business* says of his latest move, noted here in brief, last month: "A slim man of 40, with a determined jaw, walked into a large, air-conditioned office one morning last week. He sat down at a flat-topped desk 61 floors above New York's sidewalks. Lewis Williams Douglas, President Roosevelt's former Director of the Budget, had a new job. The American Cyanamid Company, \$52,000,000 chemical firm, had a new Vice-President. 'I have accepted this position because I must work to make a living,' he explained. Mr. Douglas' father is a bank President and head of a copper mining concern. His grandfather, James Douglas, founded the Phelps Dodge Corporation, America's third-largest copper company. The new Vice-President got his scientific training at M.I.T. There he studied metallurgy and geology. Afterwards he taught chemistry at the Hackley School in Tarrytown, N. Y. For two years he worked in his native Arizona as a laborer loading lead ore. Later he ran his own mine. A steady stream of profits flows to American Cyanamid from mines that buy its cyanide, pine oil, and other chemicals. Gold, copper, and zinc companies float or dissolve ore in these preparations to isolate metal-bearing particles. American Cyanamid also makes dyestuffs. Farmers know the company as an important fertilizer producer. Road builders and quarries buy its blasting powder and dynamite. A subsidiary, Lederle Laboratories, Inc., supplies doctors and hospitals with vaccines and antitoxins against diphtheria, smallpox, cholera, and influenza. Druggists sell Lederle Acidophilus Milk to aid digestion. Best-known American Cyanamid product in beetle-ware, a celluloid-like material that is shatter-proof and non-inflammable." — RAYMOND STEVENS, Secretary, 30 Charles River Road, Cambridge, Mass.

1918

Those disquieting emotions which perturb the undergraduate bosom are evidently directed against windmills which turn sleepily in never-never land. Certainly the burning out of our own college-day hates is no unique experience in the light of that invitation, via Walt Robinson, to join the "1935 Huddle" held by the Harvard, Yale, and Princeton Engineering Associations, with dear old M.I.T. and three "rahs" on the end. Whether this joint affair of January 18 ended in a hearty round of back-slapping, in deadly notes of the "or-else" variety, or in the illusive mockery of a frankly distasteful brawl, we know not; but, lest our curiosity gather dust in the hushed halls of learning, we are going to New

York tomorrow on what has been offensively described as a snooping expedition. This will leave you to fret and fidget for another month.

Due to some enchanting circumstance, now unhappily forgotten, the tedium of these columns has been habitually enlivened of late by the name of Doctor Harold Weber. And by Jove, here he is again, this time with heightened glamour emanating from the Sigma Xi key hung onto his third vest button at a dinner of that well-known national honorary scientific fraternity held January 11. Let us all join in a faint, antiphonal, but justifiable glow of reflected triumph.

These random notes on life have, of late years, seldom included the ringing of the church bells which seemed so continuous a feature during our earlier, and perhaps more romantic, archives. But the paper of January 16 takes us back with reminiscent vigor to stand very stiff and miserable, brave in dress clothes and white gloves, while . . . well, to be specific the headline reads, "Ella Uppercu's Troth Announced." (The printer did not run out of t's.) The item goes on to say that the lady will wed Philip Dinkins of Montclair, on January 26. The couple is to be married quietly in the Uppercu country home. The bride is a graduate of the Spence School and was presented at the Court of St. James three seasons ago. So there!

Three days ago (to keep our threes and our James's sequentially arranged), Jim Flint, east from Columbus, Ohio, on the mighty affairs of the Jeffrey Manufacturing Company, concluded — when confronted with the gritty realism of a closed door — that we were out. So instead of weeping with disappointment he penned a very sassy note ending with a foul but constructive suggestion as to where we could go. We take this means of telling Jim, wherever he may be, that our sudden surrender to panic was only temporary. Our lawyer has looked up the law and finds that we do not have to go. So there! — F. ALEXANDER MAGOUN, Secretary, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, Assistant Secretary, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

Plans are now definitely set for the big Fifteenth Reunion. Time: from Friday evening, May 31, to Sunday afternoon, June 2. Place: Norwich Inn, Norwich, Conn. The Reunion Committee selected the Norwich Inn only after a careful consideration of a number of locations. Not only is Norwich easily accessible from all parts of Massachusetts, Rhode Island, Connecticut, and New York, but the Inn itself is ideal for a reunion — big, comfortable, secluded, with a wonderful golf course and facilities for all other outdoor activities. We are confident that this will be the best reunion yet.

Jim Gibson has become associated with the firm of James D. Henderson and Son, prominent real estate experts and appraisers in Boston. — Louis Harris, now a full-fledged professor at the Institute and associated with the faculty for the

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1920 Continued

past 12 years, was seriously injured in an automobile accident in Cambridge, according to a newspaper report received December 13. We haven't learned how Harris is getting along. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

Ray and a blizzard have blown into town simultaneously and our executive session of the TOBCS will be postponed until later in the week.

For our readers in Northern New Jersey there is an announcement of interest elsewhere in this issue. (See page III.)

Continuing our series of histories of various members of the class, we reprint an article which appeared in *Steel* for June 25, 1934: "Paul N. Anderson, recently elected President of the Dahlstrom Metallic Door Company of Jamestown, N. Y., was born in Jamestown and was graduated from Phillips Exeter in 1917. He then attended M.I.T., graduating in 1921. Following his educational training, he became associated with the Empire Case Goods Company of Jamestown, manufacturers of furniture. From 1925 to 1932 he was Vice-President and Treasurer of this company, selling out his interest in the latter year. He then became connected with the Dahlstrom Company, and, in March of this year, was chosen President and General Manager. This company manufactures, in addition to metal doors, a line of metal partitions and interior trim, metal moldings and shapes, elevator entrances, and library stacks."

"Mr. Anderson is a member of the board of public utilities which operates the municipal water and light departments of Jamestown, a member of the board of directors of the Bank of Jamestown, a director of Hotel Jamestown, Inc., and a director of the Jamestown Chamber of Commerce. He is the father of six boys, the eldest of whom is 12." In a recent letter to Ray, Paul says he rarely sees any Technology men in his vicinity and would like to have any of the flock look him up when near Jamestown. In a note to ye scribe, Ray reports mentioning Paul on seeing Dean Lobby recently. That august personage apparently saw Paul last summer and, on hearing that the eldest boy was planning to enter Technology, inquired if all of them were to go to the Institute, observing, it is alleged, that one Anderson at a time was enough! A most unkind remark, Paul, after your fine invitation and we'll ignore it. Let us know when you're headed for Albany so we can hop over to New York to vote.

Are those March winds going to blow any letters to your secretaries? — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1923

Most of the items this month come under the head of "vital" statistics. The engagement of John Flaherty, III, to Edith Stuyvesant Sena, of Somerville, was

announced at a Christmas reception, and the marriage is scheduled for June. Flaherty is a construction engineer with the Federal Government.

Hilton W. Long, XII, according to the *Boston Herald*, was married on December 2, to Harriette Wilder Patey, of Newtonville. The couple will make their home in Cambridge. — Francis Minor, XIII, Boston architect of the firm of Owens and Minor, according to the *Boston Daily Record*, filed intentions in Providence on December 6 to marry Ella May Lemaire, his secretary. This is Minor's second marriage.

I have a letter from J. M. Sil, VI, who is at Poona, India. He accounts for himself as follows: "I started my career in India as an engineer in the Power House of the Ludlow Jute Mills Company, which is under the Bemis Bag Company of Boston. In 1927 I entered the India Meteorological Department as a meteorologist in charge of instruments, workshop, and power plant. This is an Imperial Service under the government of India." — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1926

The Secretary deeply regrets to announce the death of two members of our class. On January 13, Carl F. Theisen, First Lieutenant in the Air Corps, crashed in the vicinity of Lawrenceville, Va., and was instantly killed. Immediately after graduating from the Institute, he was placed on active duty to undergo flying training, and a year later qualified himself for appointment in the regular Army. In 1931 he was sent back to Technology for advanced work in physics, chemistry, and metallurgy and, upon completion of this graduate work, he was assigned to duty at Bolling Field, his last station.

On January 18, Harry M. Boardman died of pneumonia after an illness of one week. Harry had been for a number of years with the Champion Spark Plug Company and he was an officer of the Technology Club of Detroit. Harry was married only last May. As you doubtless recall, he was General Manager of the Tech Show and was active in many undergraduate affairs at the Institute.

The class can ill afford to lose members like Boardman and Theisen. The Secretary has expressed to their families the sympathy of the Class.

C. E. Tonry is still located in Telluride, Colo., and he has been fairly busy as a result of the boom in gold and silver mining in that state, although at the time he wrote in December he was between two jobs. He has had some interesting experiences investigating some of the old mining properties in Colorado and in developing some of them. He believes that there is still opportunity for money to be made in Colorado mines. Conditions are a little quiet in Telluride this winter, but there is every sign of considerable activity in the spring. His expectation was that he would go to Alma, Colo., very shortly to take charge of a gold

property which was being developed for operation on a large scale. — A. F. Johnson, of Boulder, Colo., is consulting engineer for the Bondholder Gold Mines, Inc., Ward, Colo. — J. RHYNE KILLIAN, Jr., *Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1928

Mrs. Richard L. Spofford has asked us to inform the class of the unfortunate death of Dick Spofford, who is well remembered by many of his former classmates, especially those in Course II. Dick died at his home in New York City on December 13, 1934. He was manager of fencing at the Institute, and after graduation was employed as junior engineer by the Postal Telegraph and Cable Company at 67 Broad Street in New York City. We extend our sincere sympathy to Mrs. Spofford.

Through the courtesy of Professor John B. Babcock in the Department of Railway Engineering, we have learned of the death of John A. Jameson, Jr., on September 26, 1934, at Oakland, Calif. Professor Babcock received this information from John's father, who lives in Santa Barbara. John was graduated *magna cum laude* from Williams College in 1925. He received his Bachelor's Degree in Civil Engineering with our class, and a Master's Degree in 1933 from the University of California. John was a member of Sigma Phi Fraternity, Phi Beta Kappa, charter member of Chi Epsilon at the Institute (Honorary Civil Engineering Fraternity), Tau Beta Pi, and the American Society of Civil Engineers. At the time of his death he was research assistant in the Department of Engineering at the University of California. We extend our deepest sympathy to John's father, his widow, Helen Williams Jameson, and his daughter, Janet, aged three years.

William "Sparks" Beard of Course I has just written another book entitled "Government and Technology," published by the Macmillan Company. A review of the book in *Mechanical Engineering* said, "Mr. Beard is to be commended for pioneering so effectively in a field which has long been neglected by engineers and engineering educators." Heartiest congratulations to William Beard on his latest volume.

On November 16, 1934, the *Boston Transcript* carried an announcement by Mr. and Mrs. Coes Chase, formerly of Cambridge and now of Kennebunkport, Maine, of the marriage of their daughter, Miss Mary Frances Chase, to Maxwell Parshall on Sunday, November 11, at Kennebunkport. The *Transcript* also stated that the bride has been an assistant in the Department of the Secretary of the Commonwealth at the State House in Boston, while Mr. Parshall is now Chief Chemist of the Colorado State Dairy Commission at Fort Collins, Colo.

The *Boston Herald* warmed up to the situation a little more with a somewhat longer announcement, which included the statement that Mr. Parshall flew to Boston by airplane from Colorado three days before their marriage. The Boston

1928 Continued

Post expanded this situation even more with a good-sized heading which said, "Takes Plane to Win Girl," and the *Post* article also added the sentence, "It was learned a few days ago the chemist, who wears a full beard, took an airplane to Boston, proposed, and was accepted in quick fashion."

It remained for the *Boston Globe* to get the real drama in this situation, which they did on November 22, in 24, full-column inches by their State House reporter, Laurence G. Hanscom. This article had a double "head" over two inches high with the lead-off, "State House Girl Bride in Romance." Mr. Hanscom was very much impressed by Maxwell Parshall, as the following quotations from his article so clearly indicate: "The reporter was first interested in the romance by the unusual appearance of a chance fellow passenger in one of the State House elevators. The building is crammed with individualists, with more or less pronounced characteristics in appearance and dress but there are few who present a more admirable disregard for custom than this particular young man."

"Smart in dress, tall, of splendid bearing, bright of eye, and keen of manner, this athletic-looking man of 20-odd had a full beard of most distinguished proportions. Not a chin whisker, not sideburns, but a 'whopper' of a beard, which would have been the envy of a Civil War general in grandfather's day. The newsman's first thought was that a foreign diplomat had come to pay his respects to the Governor. He might even be a Prince of the Near East. He was at least a Spanish Grandee."

The rest of Mr. Hanscom's article was an attempt to recreate the romance in undergraduate days, and it tells of the speed with which the affair finally culminated when Maxwell decided to fly to Boston and "pop the question."

The concluding paragraph of this *Boston Globe* write-up was as follows: "The first time this reporter saw Mr. Parshall, he registered him as one who looked as if he'd get what he went after."

Adam Stricker's Christmas card contained news of another "Mr. and Mrs." partnership. We should like more first-hand information about it, and this request is also meant for all similar events about other classmates. Too often we have to depend upon rather incomplete press notices for the necessary details. — Early last December John D'Arcy Baker-Carr wedded Miss Catherine McBurney of Ontario, Canada, after an interesting romance which started on a round-the-world trip. The wedding took place in Japan, and their future home will be in either Peiping or Shanghai, China, where Mr. Baker-Carr is stationed in connection with business interests. — The engagement of Miss Carolyn Estelle Lewis to Lieutenant Connor Bell, Jr., was announced early in December by Miss Lewis's parents in Medford, Mass. Lieutenant Bell is now stationed in Camden, N. J.

Martin "Van" Brillhart is now supervising the sale of commercial refrigeration and commercial cooking appliances for the Pennsylvania Power and Light Company. He is now living at 1601 Easton Avenue in Bethlehem, Pa. Van was married last June to a girl he had known since early prep. school days. He has given an unqualified endorsement of the advantages of being a benedict. — GEORGE I. CHATFIELD, *General Secretary*, 5 Alben Street, Winchester, Mass.

COURSE I

Many excuses might be offered for the considerable lapse of time since our last appearance in these pages. We shall not, however, burden you with an enumeration, but start right in and beg forgiveness if the first news is a personal item; it serves as a basis for news item Number Two. After a very pleasant year of work with the West Virginia Pulp and Paper Company in New York, I received an offer of employment with the Tennessee Valley Authority. I found myself quite unable to resist the offer and reported in Knoxville in December. I am in the TVA General Engineering and Geology Department, and am at present busy on the design of the Pickwick Landing dam. In the short time I have been here my impressions of the TVA and its work have been entirely favorable, and I am, of course, watching its progress with great interest. Anne and I are living at 2831 East Fifth Avenue, and the "visitors welcome" sign is out. For mail, however, I suggest use of the office address appended to these notes.

After a few days in Knoxville I had the pleasure of running into Earl Crawford. By coincidence he started working here on the same day I did. Earl is an assistant bridge engineer for the Southern Railroad and at present is dividing his time between Knoxville and Hickory, N. C., where an erection job is under way. His address is Sterchi Apartments, Knoxville. For some time prior to his move down here, Earl was connected with Professor Spofford on design and construction of the Cape Cod bridges. On this job he was in Boston at the design office, in Pittsburgh at the fabricating shops, and on Cape Cod in the field office. By the way, those of you in the North may envy Earl's and my golf games down here in January.

That crack about the southern winters will have no effect on Art Josephs who is sunning himself in (and may be addressed at) Coolidge, Ariz. Since last August, Art has been with the U. S. Indian Irrigation Service. For two months he was on preliminary field work for a dam at Owyhee, Nev. This metropolis of 50 people, mostly Indians, is practically snow-bound when winter sets in, so work there ceases in October, and Art moved on to Coolidge, where he is engaged in studies for a large rock-fill dam on the Gila River.

It has been some time since I have had any news which I classify, rather incorrectly, under "vital statistics." But now it's congratulations for Charlie Cristofalo, who was married on June 25, last

year, but neglected to tell about it until Christmas! Charlie and his wife are living at 23 West 65th Street, New York City, and he is working at Pelham Bay Park, in the Bronx. If you are near Pleasantville, N. Y., on a week-end, you will probably find Charlie visiting his family there.

A very nice Christmas card from Bob and "Ginger" Harbeck was postmarked Mondovi, Wis., but carried no news as to what Bob was doing there. — Hy Weinberg is rounding out his second year in charge of CCC camps. Most of this time has been in Louisiana, and his latest address is Company 280, CCC, Minden, La. — Last September I was greatly disappointed when business caused cancellation of what would have been a meeting with Bill Kirk and Wally Bissell at George Mangurian's in Hartford, Conn., I have, however, had the pleasure of seeing George several times in New York. As these notes have at times recounted, George has been with the Chance-Vought Corporation since leaving the Institute, and, although he would be one of the last people to say so, he is without doubt one of that company's most valued designers of airplanes.

Our reportorial shortcomings are many, and we find we must be vague on two items on which we should surely be clear. Someone, we're sure, told us that Bill Erickson was married, and that Kent Hough was running a soil mechanics laboratory for the government somewhere in Ohio. We beg forgiveness and two letters to clarify these points. And it would perhaps be wise to close by saying that Knoxville is not quite the engineering crossroad that New York is, so that news is now dependent on just one thing, letters. — GEORGE P. PALO, *Secretary*, Tennessee Valley Authority, Department of General Engineering and Geology, Knoxville, Tenn.

1931

A slight mix-up as to the authorship of the class notes for these next issues of *The Review*, accompanied at the same time by a state of confusion in the mind of the present writer, which in turn arose from various academic disturbances such as general examinations, has led, perhaps to an impression of torpidity. It is hoped that the present contribution, combined with those of the future, for which the aid of all Course Secretaries is earnestly solicited, will quickly alter this impression.

It is pleasant to begin with a number of wedding and engagement announcements. Thomas Knox and Miss Barbara Brewster Evans were married in September in Wellesley Hills. Knox is in charge of experiments in building airplanes of a new plywood in Milford, N. H., where the couple will make their home. — The engagement of Miss Alice Wilhelmina Moberg to Henry Ahlberg has been announced; the wedding will take place next summer. — Miss Charlotte Dunkel Hammer's engagement to Gilbert Ayres follows on closely. Ayres, who took his Ph.D. at the Institute last year, is now

1931 Continued

doing research at the Harvard Medical School. — The engagement of Miss Grace De Simone to Dr. Joseph Ferrucci is also announced. — We have received information that Miss Thirza Jane Saxton and Thomas Morrow were recently married; and although similar word reaches us concerning Edward Abbott and Robert Knight we are not yet aware of the maiden names of the two ladies in question.

From a variety of sources, and over a period of time, I have obtained the information which follows. I will not try to subdivide it for there appears no clear-cut means of doing so. Emilio Collado, having completed some graduate work at Harvard, is now assistant to Harry White of Harvard in International Trade Tariff Division of the Treasury Department, Washington, under Civil Service. — I. M. Lord is now with the Whitlock Cordage Company in Jersey City, N. J. — From Hugh Wertz came these words: "I am a patent attorney with the Bell Laboratories and my work embraces television, which is, of course, very interesting." His address is now 463 West Street, New York City.

Donald Herbert now has the title of Lieutenant C. A. Res., and is located at Camp N. M.-2-C, Grand Junction, Colorado, where he is second in command of the CCC camp. The crowd is engaged in building a road in the Colorado National Monuments, which consists principally of erosion forms of sand-stone of the Jurassic age. There are numerous dinosaur beds at the foot of the cliffs which he has not explored as yet. Prior to going with the CCC camp, he had various experiences in Colorado, including a rather brief career as consulting engineer, which did not prove profitable. — Bror Grondal, Carrington Mason, and Bob Backus are to be seen about the Institute again, although their several capacities are not completely known to date.

We are sad to recount the death of Lieutenant Morris Goldberg of the Army Air Corps, stationed at France Field, Colon, Panama. Investigation shows that he lost control of his plane at a 200-foot altitude. The plane then spun against an artillery spotting tower several miles from Fort Randolph. A rescue party was transported in boats to reach the plane, in which Goldberg was accompanied by a private, who sustained burns. The craft was destroyed.

There remain a number of odd bits of information which will be included; although scanty, it will doubtless be of interest and we hope to have it more complete another time. Bob Leadbetter, who is working for the American Mutual Liability Insurance Company, has recently been transferred to Worcester, where he is Lord High Engineer. Bob Snyder is with the credit department of the National Shawmut Bank of Boston, and is living in Auburndale. Bob Price has come to amicable terms with the Package Machinery Company in Springfield, Mass., as an engineer. Joe Birdsall compiles complicated analyses for Messrs. Dun and Bradstreet, in New York, where he shares an apartment with Larry Bar-

nard, who is with Phelps Dodge. Warren Dickinson, who successfully evaded the writer in Munich, seems to be now in California, finding out about airplanes at the Boeing School of Aeronautics. Gil Roddy's "exponential strides" are already carrying him far into the financial world with the Boston Manufacturers Mutual Fire Insurance Company. The baseness of continual moiling for gold is constantly held before him, by no other than your obedient servant and Secretary. — JAMES B. FISK, *General Secretary*, Room 6-303, M.I.T., Cambridge, Mass.

1932

The notes for the last issue were due just at Christmas and were consequently one of the many things left undone by your Secretary. Your Class President, Don Gilman, was married on December 8 to Miss Doris Ekstrom. Unfortunately, I was not able to attend and thus give you a first-hand account of what must be an outstanding event in the annals of our class. The bride was the Doris that we knew back in Boston, and I know you all join with me in wishing them the best. They are now at home at 3412 West Jackson Boulevard, Chicago.

Tom Rhines is engaged to a girl in Connecticut; I don't dare be more definite as I have lost the clipping that announced it. You would think that he would have let a fellow know. Perhaps this little item will spur him to write. — Philip Lester Bruce was married to Miss Louise White Trowbridge, November 29. They are now living at 160 Strathmore Road, Brighton. In the list of ushers I recognized Mal Davis of Harwichport.

By way of The Review office I received this notice from John Brown, X, and hereby pass it on: "The members of our class living in greater New York had supper at the Tech Club, November 21, at which 20 members and guests were present. During the evening everyone gave an account of his experiences since leaving the Institute, which, as might have been expected, varied from selling insurance in the city to flying over the world in search of new routes for airplanes. We expect to have another meeting in January and wish that anyone living nearby, and not on our mailing list, would send his address to the club so that notices can be sent. Among those present were: G. Amerman, M. R. Bridgham, J. J. Brown, R. H. Burdick, C. E. Burnett, J. T. Cimorelli, S. R. Fleming, L. W. Glowa, W. Gray, J. H. Hirsch, L. C. Littlefield, E. J. Mack, C. Martin, W. Moore, J. R. Poole, E. W. Schafer, J. B. Smith, H. M. Wagner." I realize that this will be a little late for the January meeting mentioned, but it gives me an opportunity to suggest that you fellows look up the Alumni clubs in your locality. A little talk of shop and Boston will prove mighty interesting.

Actually I received one of those penny post cards I have been making so much noise about. It was from an old co-worker on T.E.N., Bob McCaa, and to show how much news can be placed there, I will quote in full: "Another country heard

from! VI-A this time. I started working here in York, Pa., early last month as electrical engineer for the York Ice Machinery Corporation, on control apparatus and motors. Some M.I.T. men preceding me here and still with York Ice are: Walter S. Galazzi '33, M.E., Byron E. James '32, Alwin B. Newton '31, and Arthur J. Seiler '32. . . ."

Jim Harper claims that he is making honest efforts to gather some news of Course XVII. He reports that he has recently become manager of the Wichita Falls Branch of the Steves Sash and Door Company. How about some of you XVII men writing him at that address; the state is Texas, in case you had forgot. — CLARENCE M. CHASE, JR., *General Secretary*, 539 Central Avenue, Bound Brook, N. J.

COURSE III

It is with the greatest pleasure that we announce the marriage on November 22, 1934, of Miss May Hoogan of Waterbury, Conn., to Thomas Hartigan. We all join in sending our congratulations to Tom and his wife with all good wishes for their future happiness. Tom, you know, is Secretary of the Standard Beer Sales Corporation up there in Connecticut, and is also Secretary of the New Haven County Technology Club. Most of the foregoing was on a card from Curtin not long ago. He joins Tom Hannafin, his roommate, in sending their regards to our department.

Haynes stopped in here on December 17 of last year on his way east for the winter. He left the St. Joe Mining and Milling Company out in Boulder, Colo., the middle of November, and expects to go back west sometime in the spring. About two days after he was here a card came saying that he had stopped in to see the Sun Oil Company on his way through Philadelphia, and was sailing on the twenty-first for Texas in the engine room of the *Northern Sun*, one of their tankers. Thus he joins with Jones of the Standard Oil Company as one of two who have taken to the sea.

Word has come from Professor Locke that Demas is working again, this time with the Annie Creek Mining Company, at Trojan, S. D. In November when I last heard, he was employed in the examination of their mines near Lead, S. D., as assistant to the man in charge, and was doing some drafting, a little surveying, preparing of samples for assaying, and some geological work. The job is temporary, but if the results of the work are favorable, he hopes for permanent work. We are right behind you hoping, Demas, so lots of luck to you. — HENRY J. CHAPIN, *Secretary*, Y.M.C.A., McKeesport, Pa.

1933

Another month has rolled around and due to my rush at Columbia I haven't gathered much news. I hope to get my Master's in Metallurgy, in February, and have been busy finishing up. After that I hope to apply myself full time to the metal business which I have been sharing with Columbia so far.

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I do have a letter from Norm Harris, however, which is most welcome. He tells of Frank Koerner "who is working at the Corning Glass Works, Corning, N. Y., doing layouts, production planning, and so on, similar to what we had at M.I.T."

Here's what he has to say about himself: 'Had a temporary job in the summer of '33 in an oil testing laboratory, then in September of that year came with the company I'm with now. It's the Liberty Mutual Insurance Company. You've probably heard of it as we're the best, biggest, strongest outfit, and so on, and so on. I first worked in our Worcester office as a 'renewal man,' learning the business. Just got well started when a salesman there got himself fired, and as it was in the midst of our rush season, I was elected to go into the selling end of the game. I worked in Worcester until last August when they moved me to my own office in Gloucester, gave me a company car, a raise in pay, a couple of pats on the back, and said, 'Go to it old boy,' we want some business from that place!

"I never dreamed I'd be a salesman — and least of all an insurance salesman — but I seem to be going along with the tide, and as it is running fuller and fuller each day, I have no cause to complain. In fact, they're a swell company to work for, and they pay a salary — no commission work — so I have no cause to complain at all except that maybe my M.I.T. training is being wasted."

Well, that is my story (or Norm's) for this time. I sure would like to be burdened with some mail from you fellows sometime.—GEORGE HENNING, JR., *General Secretary*, 163 Barbey Street, Brooklyn, N. Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-106, M.I.T., Cambridge, Mass.

COURSE XIV

The last I heard of Bob Seyl connected him with the Majestic Radio Corporation. Now listen to this! He writes: "Part of last spring and summer was devoted to control work at the Van Schaack Brothers Chemical Works of Chicago, a company with a well-established reputation in the lacquer solvent and plasticizer field." To broaden this experience he says later: "Recently I started work with the Great Lakes Plating Company of Chicago, reported to be the largest job platers in the country; two floors of plating and one devoted to japanning. Practically every job must be done quickly to satisfy customers, and the variety of objects and the quantity handled requires a bit of technique and judgment. I will install a laboratory to control our 140 plating, cleaning, and pickling tanks, and eventually endeavor to carry on development and research work according to the best traditions of M.I.T. Right now we are going through the ordeal of inventory. It is a great company to work for, and I am certainly keeping busy." Along with the regards which Bob sends let me add mine for a Happy New Year.

Chim writes that he is still with the Gas Company. He has been working on house heating and industrial jobs. More recently, he has been testing appliances which the company propose to market or sponsor. — Yours truly is still busy trying to dye the world red, brown, blue, green, purple, and what have you, with the Althouse Chemical Company of Reading. There are some strange things about the job, among them is the fact that from day to day I do not know what will be the color of my hair. It depends on the dye we are making. What is even more disconcerting, however, is the fact that my hair is dyed somewhat by dye-stuffs which are supposed to dye only cotton and rayon, or, in other words, the vegetable fibers. Draw your own conclusions, I don't care to. Work for me has been somewhat lessened for the last three months by the addition to the company of George Garcelon, V, who is doing a greater share of the research laboratory work. — That is all for now. I'll try to have more another time. — OTTO A. PUTNAM, *Secretary*, 540 Pear Street, Reading, Pa.

COURSE XVII

A whole lot of time has gone by without a single word from anyone but Tom, and what are we going to do about a little news? Belatedly, let me thank the gang for the Christmas cards. Next time, write a little squib on the bottom as Bob Crane did. Tom writes that he's still working for the City Engineer at Haverhill on ERA projects. His special job, just at the time of writing, was building a retaining wall to keep parts of the fair streets of Haverhill from sliding into the Merrimack when spring comes, the snow thaws, and the freshets begin. It's been a pretty good job for "experience," Tom reports. He and another Technology man, "Bob," I, '31 did the design work, determined the concrete mixes, made form plans, and then went out and built the darn thing using relief labor. His description of this labor is, quote, "I!!!", unquote. And if that's not sufficiently definite, drop Bob Crane a letter; he has some experience with one of the "initial" agencies to talk about.

The wolf keeps a respectable distance from Galvin to date, but the retaining wall should be finished about the middle of February; if you hear a mighty yelping and howling about the first of March, it's Tom and the "Canis" (see Webster) coming to grips. Though one can't be sure of anything but taxes and more code regulations, our engineer has hopes of another assignment when the present job is finished.

Bob Crane has been fairly busy and is still selling ornamental metals. His experience with PWA is making a heathen of him, too. Welcome to our ranks Bob! Now for Sully, and you know I have had only one letter from him in a whole year and a half. He's engineer for E. J. Rappello, building construction, and is working on a hospital somewhere near Haverhill. Gene is coming right along, according to Tom, has had a little labor trouble

to leaven the dull existence of the job man, and has devised a system of forms for slabs that Tom says is what we Southerners call a "honey." Galvin mentions patent prospects, and maybe any time now we'll have a patenter from our class.

Ed Rowell sent Galvin a card addressed to "Haverhill, Mass." and, of course, it was delivered without delay . . . that's how Tom rates in a town of 50,000.

I'm still in the office at home, doing estimating and miscellaneous jobs. For ten days the difficulties of a very permeable wall occupied my attention on the coast of this state, but that's all over now. I just hope that Professor Voss gets those bonding and adherence tests and results completed and fixes things up so no architect will ever again specify a 1:3 mortar for hard brick; the wall leaked like a sieve, and we couldn't even drive a nail in the mortar for the furring.

So much for this. How about a note from you again? — BEAUMERT WHITTON, *Secretary*, care of Southeastern Construction Company, Box 1491, Charlotte, N. C.

1934

Christmas bells mingled with wedding bells for at least one member of the class, and that lucky one happens to be Bud Golsan. The girl's (or rather, Mrs. Golsan, Jr.'s) name is Isabell Zeller. The couple were married in Indianapolis, on December 22, and the last I heard from Bud was that they were trying awfully hard to settle down somewhere around Detroit. Sam Crew was best man, and Floyd Carpenter and Charlie Schauer '35 were ushers at the ceremony. All those mentioned above, including the groom, are members of Chi Phi. In mentioning their names, Bud added that they formed moral as well as physical support. — My report of the other marriages is rather old. I have been informed that Jimmie Parker has been happily married since our sophomore year; and Neil Putnam is married — time, place, and girl unknown.

As, for engagement announcements, here are the latest. Brad Hooper sent me a fine engraved announcement on Christmas Day. The girl is Miss Helen Thompson, of Nashua. In prodding Brad for a little something about Helen, here is what I got: She is New Hampshire born and bred — Bethlehem, in 1913, on February 7. She moved to Nashua when her father, Dr. Howard E. Thompson, set up practice there as a physician and surgeon. She enjoyed a normal period of growing up, was graduated from N.H.S. in '32, and will be graduated next June from the Vesper George School of Art, in Boston. Then there is Tom Burton, whose engagement to Miss Louise Benoit was announced in the Boston *Traveler* on January 4. Miss Benoit is a junior at the Massachusetts School of Art. You fellows from the boat house surely remember the many times Tom's fiancée went out in the launch just to watch Tom and those marvelous '50's row. Dick Marcy's engagement was also announced at about

1934 Continued

the same time. The girl in this case is Miss Polly Godfrey. Miss Godfrey is from Auburndale and was graduated from Lasell Junior College.

The last to leave the bachelor's road is Len Shapiro, who claims that his becoming engaged was his only real accomplishment of the past summer. He didn't mention his fiancée's name, but any of you who are interested may see an intimate glimpse of her with Len in the informal section of *Technique*. Len now has a job with Keuffel and Esser in Hoboken. He is working on their sensitized tracing paper. Len also gave me some news of other fellows. Henry Kaweck, who was working with the Beryllium Products Company, succumbed to some form of fluorine poisoning and returned to Chicago to recuperate. Jalo Kauppinen is at the Harvard Medical School, while Ed Nowell is with Procter and Gamble, interviewing men for them, no less.

Our class held another dinner at the Technology Club here in New York, on January 15. Among the new fellows who were there were Charlie Finnigan, Charlie Bechle, Butch Patch, Cecil Faraoni, Herb Andrews, Wally Wise, and Paul Gerhard. Faraoni disclosed the fact that he is working at the Atha Plant of the Crucible Steel Company, at Harrison, N. J. Ray Carr is with the same company at Pittsburgh. From Herb Andrews came word that his former roommate, Carlton Cook, has recently undergone an operation for appendicitis. He should have recovered sufficiently by this time to have returned to his job with the Cream Dove Peanut Butter Corporation, in Binghamton, N. Y. — Sheeth Numan, the Iraqi, is taking graduate work at the University of Wisconsin and is also doing research work for the U. S. Forest Products laboratory, in Madison, Wis.

Good old Herby Lidoff, the old windbag, is having plenty of competition in his new job. He is operating a wind tunnel for the Government in the Navy Yard at Washington. Besides the 80-mile breezes that silently float by his ears during the day, Herb says that those breezes continue to blow through the rigging of *Aristotle III*, which again deigns to perambulate. His advice to our classmates is for them to take all government exams that come along for which

they are eligible, then forget about them, and in a year or so the Government will come through with a job.

The latest word from Harry Eagan is that he and Hal Thayer are still with Calco Chemical in the student corps. It won't be long, however, before they will both go on the road as salesmen for that company. Here are some bits from his letter: "Frank Baxter has left his job with the insurance company, and is now an industrial engineer for a silk firm in Dux-cannon, Pa. . . . Carl Wilson, Herb McKeague, and Cash Belden are all with American Optical in Southbridge, Mass. . . . Cash bears the title of assistant personnel director. . . . Paul Lawlor and Ray Kenney are the mystery men of Course XV; nobody knows where they are or what they are doing. . . . Andy Andresen is with the Bishop Construction Company, building a scientific structure at Wellesley, and actually gets paid for it."

Brad Hooper, as some of you know, is working for Professor Norton in ceramics. Brad, who took the regular mining course, suddenly became interested in ceramics through a course he took under Professor Norton and because his thesis dealt somewhat with that field. He is making insulating brick at school. For a while he was doing some work for the American Brake Shoe and Foundry Company through the Division of Industrial Cooperation. This took him out to a foundry in Norwood three days each week, while the rest of his time was spent at school making refractory brick, and drafting. Bob O'Brien, one of the fellows who got through in September, is working permanently in the Creep Test Laboratory. Bill Mills, who is in Tampa, and who wrote Brad that the weather was fine there, is now completing a job for the Ingalls Iron Works designing a phosphate washer. (Here Brad says he could make a dirty crack but won't, so I'll make it, merely by saying: "look up the word guano in the dictionary.")

Course III, as usual, provides lots of news for this monthly report. Heading the list comes Ralph Geil. Ralph, about whom I said something last month, is staying here with me in New York for a few days. He was called down from Rochester by a Mr. Bridgman, and after a short interview, it was made almost

certain that he will start for Malay in February (this having been written in January). His work will consist of surveying and developing new tin dredging properties. Kevin Malone is now connected with the Philadelphia and Reading Coal and Iron Company, while Bill Wessel has returned to school, where he is running some lab tests. His job in Colorado ended suddenly when he found the head of the firm was a crook.

Recent word has also reached here about Johnny Alder. He is at Oatman, Ariz., working for Bob McIver and his father, who, under the name of Oatman Associates, are operating two leases. Alder went west on a temporary job in Nevada, but quit when the ghost did not walk satisfactorily on pay day. He then started on a trip and arrived in Grass Valley, Calif., on December 16. He rustled for a job there for about five days, without success, and then walked and hitch-hiked down the Mother Lode to Jamestown. Thence he went into San Francisco and took the bus down to Paso Robles, stopping at Holliston to see if the mercury mines, either there or at Idria, were working, but they were not. From Paso Robles he went to Bakersfield and then to Mojave, where they made that new strike that has been reported in the papers. He then hiked to Randsburg, where things were quiet, so he went down to Los Angeles, and there he got a line on a possible job in Silver City, N. M. However, on his way there he stopped at Oatman and got the job on which he is working. He has a definite offer of a job in Alaska after the first of March, and feels that he will probably take it. McIver is doing all the bookkeeping and electrical wiring, as well as surveying and mapping for the company. Bruce Whitney is working at the United Verde Extension at Jerome, Ariz., and made a visit to Oatman to see McIver. Whitney had been laid off from the job for a little while but was working again. Frank Milliken and Carl Stratton are still at Technology as assistants in the Mining Department, and from all reports, are making themselves generally useful. — ROBERT C. BECKER, *General Secretary*, 43-20 30th Avenue, Long Island City, N. Y. HOYT P. STEELE, *Assistant Secretary*, 27 Beechwood Street, Quincy, Mass.

